



**BUNDESGESELLSCHAFT  
FÜR ENDLAGERUNG**

# **ANNUAL REPORT**





Challenges  
Dedication  
**Mine Rescue  
Brigade**

Motivation  
**Fire Brigade**

Rescue at Height  
extinguishing  
rescuing protecting

Demands  
Stress

Comradeship

## Dear Readers,

Like last year, the COVID-19 pandemic has continued to put a strain on BGE. With the rules that were put in place, we were able to control its impact on the company. One of the things that helped, for example, was the effective hygiene concept for in-presence work.

However, some outcomes were not so positive: due to the safety measures imposed, work at the construction sites could not continue at the customary pace. Some of our employees are also suffering from the effects of long COVID. Yet, there are other things – like the adoption and development of mobile working – that have gained significant momentum as a result of the pandemic. The bottom line is that the experience gained during this period gives BGE the confidence that it will overcome future crises as well.

In spite of the challenging times, the BGE staff have done everything possible to keep the individual projects moving forward. Perhaps not very visibly to the outside, the employees have been carrying out various tasks for the goal of digitalisation. For example, Product Control did important work on introducing a digital application management system for their “Nuclear Waste Logistics” project.

Other projects had much higher visibility. For example, further progress was made in the construction of the Konrad repository. All of the buildings at the Konrad 1 mine, including the guard building, heating centre, and workshop building, have been built. The next step will be to install their technical building equipment.

In the Konrad 1 shaft, the technical connections to the pit have been changed on all three levels. It is now ready for getting the northern shaft hoisting system up and running. Its hoisting motor has been built and the guide frame has been constructed on the surface.

The temporary shaft hoisting system at Konrad 2 was already put into operation at the turn of the year, on the -16 m platform. That’s real news. The foundations of the former shaft hoisting system were then demolished and the construction sites prepared for the future fan building and reloading hall. The depot was also completed. Installation of the inner lining commenced at the shaft landing – this is the filling site where the waste packages will be transferred from the storage shaft into the pit.

The Konrad project is and will remain an important component in the disposal strategy for the dismantled materials coming from all of Germany’s decommissioned nuclear power plants.

Most of the public perception of the project for waste retrieval and subsequent decommissioning of Asse came from the discussion about the waste treatment plant and its corresponding interim storage facility. The regional planning procedure for the overall project has commenced – and will continue to define much of the work in 2023.

BGE’s Morsleben personnel can be proud of a very special achievement: in April, they reached 2,000 accident-free days. For planning the decommissioning measures, numerous procedural documents have been prepared and the necessary development work has come a long way forward.

Gorleben reached a special milestone in 2022: the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) gave BGE the official order to close the Gorleben mine.

Regarding the site selection project, the year 2022 ended with a bit of a flourish. Based on the methodology for working off the preliminary safety assessments in this procedure, which has been in development since 2020, BGE presented the first concrete and realistic timetable up to the proposal of siting regions for surface exploration. Things should be ready to go in 2027. But this also makes it clear that the deadline ‘by 2031’ named in the Site Selection Act is not a realistic timeframe for finding a final repository for high-level radioactive waste. As such, what had been clear



Morsleben repository: Shell of the new administrative building. Konstantin Bochmann and Marcus Eggstein examine the next lot of plans for its interior finishing.

to many experts for a long time became publicly clear at the end of the year.

So, it is no surprise that the bulk of research and development activities in the current fiscal year focused on the implementation of the site selection procedure.

Without public and political support, BGE could not accomplish its socially important tasks and projects. And we are not just talking about the search for a repository, for which the law mandates public participation from the very beginning. Construction of the Konrad repository, retrieval of radioactive waste from the Asse II mine, and decommissioning of the Morsleben repository: none of these can go ahead without public approval.

We also definitely owe thanks to our employees: the projects couldn’t possibly be realised without their commitment, loyalty, and expertise.



**Stefan Studt**  
Chair of the Management Board

**Steffen Kanitz**  
Deputy Chair of the  
Management Board

**Dr. Thomas Lautsch**  
Technical Managing Director



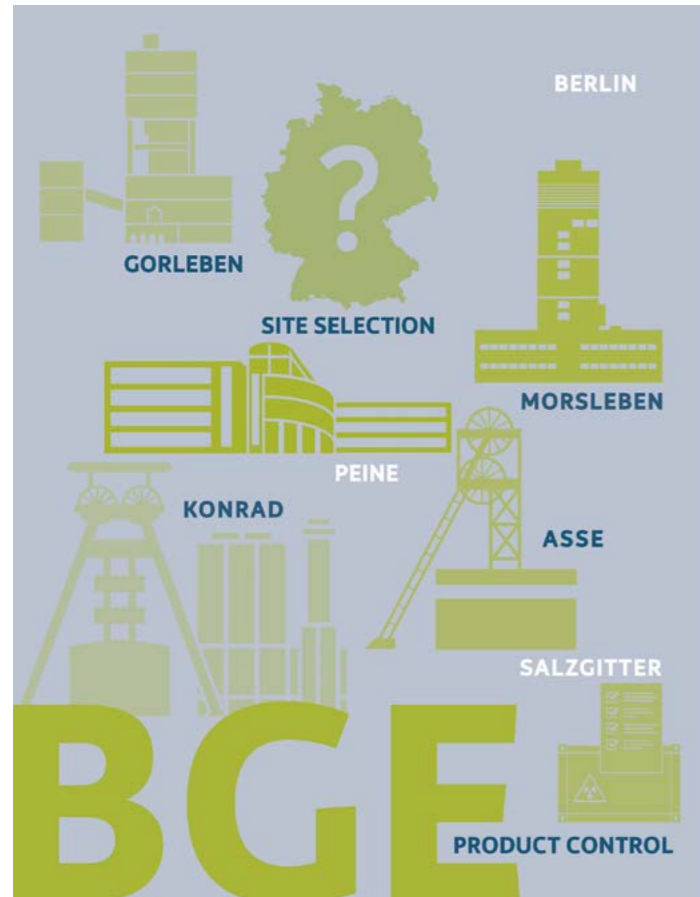
Asse mine: Semi-mobile building material facility on the 750 m level

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# Report of the supervisory board



The supervisory board of the Bundesgesellschaft für Endlagerung mbH (BGE) has equal representation since 2021 in keeping with the Co-Determination Act and has an initially court-appointed employee representative side, which now has the following members following the board elections in September 2022: Dirk Alvermann (Morsleben), Christina Egelkraut (Asse), Carsten Meyer (Peine), Christina Offermanns (Konrad), Franz-Gerd Hörnschemeyer (IG BCE), Marike Vornkahl (IG BCE), and Sebastian Zwetkow-Tobey (Asse) were

re-elected. Dr. Thomas Schröpfer (Peine) is the new employee representative to come on board.

Jochen Flasbarth, State Secretary in the Federal Ministry for the Environment until 8 December 2021, relinquished the chair of the supervisory board on 1 March 2022. Parliamentary State Secretary Christian Kühn took the chair on 4 April 2022. Furthermore, Dr. Wolfgang Cloosters of the BMUV stepped down on 6 March 2022, as did Lena Daldrup on 20 March 2022. She was succeeded by State Secretary Lilian Tschan as the representative of the Federal Ministry of Labour and Social Affairs. The shareholder side gained new members with the appointment of Dr. Christian Greipl of the BMUV on 31 March 2022 and Dr. Markus Fritschi of Nagra on 24 May 2022.

In 2022, the management board informed the BGE supervisory board verbally and in writing about all essential business transactions of the company. The supervisory board held five meetings to discuss the business performance and major projects and to deal with the transactions submitted for examination and approval in accordance with the law and articles of association. Also elected were the Chair of the Supervisory Board, the Deputy Chair, and the members of the newly established committees (presiding, mediation, and audit and risk committees).

The first supervisory board meeting for 2022 took place on 4 April 2022. In a virtual meeting, Parliamentary State Secretary Kühn was elected as the new Chair of the Supervisory Board and Mr. Hörnschemeyer as the Deputy Chair. Committee

appointments were also discussed at this meeting. The 13th supervisory board meeting of BGE was held on 12 May 2022 at the Konrad mine, in order to gain an onsite impression of the progress of the surface and underground construction work. Overall, the meeting focused on the corporate objectives and projects. This covered the approval of the closure of the Gorleben mine, including backfilling of the mine and shafts, and the dismantling of the surface facilities and salt stockpile starting in 2024. Further, an executive committee and an audit and risk committee were established. Dr. Jakob and Mr. Zwetkow-Tobey were elected as Members of the Executive Committee in addition to the members mandated by the supervisory board's rules of procedure (Supervisory Board Chair and Deputy Chair).

The members of the audit and risk committee were elected at the 14th supervisory board meeting on 20 June 2022. Those elected were: Dr. Andreas Kerst (also Chair of the Committee), Dr. Christian Greipl, Marike Vornkahl, and Dirk Alvermann. The supervisory board meetings also covered the audit of the 2021 annual financial statements, the annual report of the internal audit department, and the 2021 corporate governance report. Furthermore, the revised rules of procedure for the supervisory board and management board were adopted. The executive board's report focused on the topics of tasks, personnel, organisation, communication, economic situation, SAP project, and product control.

In a short meeting in digital format, the supervisory board met on 5 October 2022 to devote itself once again to the elections

of the Chair of the Supervisory Board (PStS Christina Kühn), the Deputy Chair (Franz-Gerd Hörnschemeyer), and the members of the three committees following the supervisory board elections in September 2022 (presiding committee: Dr. Holle Jakob, Sebastian Zwetkow-Tobey; mediation committee: Dr. Holle Jakob, Carsten Meyer; audit and risk committee: Dr. Andreas Kerst – again as Chair –, Dr. Christian Greipl, Marike Vornkahl, Dirk Alvermann).

In the last meeting of the year, on 29 November 2022, the supervisory board proposed to the shareholders' meeting that the auditing / tax consulting firm Ebner Stolz GmbH & Co KG be appointed for auditing the 2022 annual financial statements, and defined two focal points for the audit. The reporting of the executive board focused on the updated schedule for site selection, the construction and commissioning of the Konrad repository, and the prospects for temporary employment contracts. Furthermore, the supervisory board approved the recommendation to adopt the supplementary budget for 2022 in the amount of 10 million euros and the budget for 2023 at a total of 723 million euros.

The supervisory board expresses its thanks and appreciation to the management board and all BGE employees for the work they accomplished in 2022.

Peine, 30 June 2023

**Christian Kühn**

Chair of the Supervisory Board

## Members of the supervisory board

### Dirk Alvermann

Mine Captain  
Bundesgesellschaft für Endlagerung mbH,  
Morsleben Repository (Employee Representative)

### Christina Egelkraut

Legal Assistant  
Bundesgesellschaft für Endlagerung mbH,  
Asse Mine (Employee Representative)

### Dr. Markus Fritschi

Deputy CEO of the National Cooperative for  
the Disposal of Radioactive Waste, Switzerland  
(appointed on 24 May 2022)

### Dr. Christian Greipl

Head of Directorate  
Federal Ministry for the Environment, Nature  
Conservation, Nuclear Safety and Consumer  
Protection, Berlin (appointed on 31 March 2022)

### Prof. Dr. Karin Holm-Müller

Chair of Resource and Environmental Economics  
University of Bonn

### Franz-Gerhard Hörnschemeyer

Trade Union Secretary,  
Deputy Chair of the Supervisory Board of  
the Trade Union IG Bergbau, Chemie, Energie,  
Hannover (Employee Representative)

### Dr. Holle Jakob

Head of Directorate  
Federal Ministry of Finance, Berlin

### Dr. Andreas Kerst

Head of Division  
Federal Ministry of Finance, Berlin

### Sylvia Kotting-Uhl

Member of the Bundestag and Chair of the  
Committee on the Environment, Nature  
Conservation, Nuclear Safety and Consumer  
Protection of the German Bundestag until  
30 October 2021, Bündnis 90/Die Grünen, Berlin

### Christian Kühn

Parliamentary State Secretary,  
Chair of the Supervisory Board since 4 April 2022,  
Federal Ministry for the Environment, Nuclear  
Safety and Consumer Protection, Berlin

### Carsten Meyer

Project Engineer  
Bundesgesellschaft für Endlagerung mbH, Peine  
(Employee Representative)

### Christina Offermanns

Secretary to the Management  
Bundesgesellschaft für Endlagerung mbH,  
Konrad Mine (Employee Representative)

### Dr. Thomas Schröpfer

Mining Engineer  
Bundesgesellschaft für Endlagerung mbH,  
Peine (Employee Representative, since  
8 September 2022)

### Lilian Tschan

Permanent State Secretary  
Federal Ministry of Labour and Social Affairs,  
Berlin (appointed on 24 May 2022)

### Marike Vornkahl

Solicitor and Trade Union Secretary  
Trade Union IG Bergbau, Chemie, Energie,  
Hannover (Employee Representative)

### Sebastian Zwetkow-Tobey

Miner  
Bundesgesellschaft für Endlagerung mbH,  
Asse Mine (Employee Representative)

### Members left:

#### Jochen Flasbarth

State Secretary  
Federal Ministry for the Environment,  
Nuclear Safety and Consumer Protection until  
8 December 2021 (Chair of the Supervisory  
Board until 1 March 2022)

### Dr. Wolfgang Cloosters

Head of Directorate-General  
Federal Ministry for the Environment, Nature  
Conservation, Nuclear Safety and Consumer  
Protection, Berlin, until 31 December 2021  
(left on 6 March 2022)

### Lena Daldrup

Head of Division  
Federal Ministry of Labour and Social Affairs,  
Berlin, until December 2021 (left on 20 March 2022)

### Ursula Borak

Deputy Director-General  
Federal Ministry for Economic Affairs and Energy,  
Berlin (left on 22 March 2022)

### Jens Lindner

Shift Supervisor  
Bundesgesellschaft für Endlagerung mbH,  
Konrad Mine (Employee Representative,  
left on 8 September 2022)



## Hot topic: The Brigades of BGE

The main purpose of an annual report is to provide information about the company's operations and finances over the previous year. In particular, it contains the annual financial statements, including balance sheet and income statement, as well as a management report. For some years now, BGE has been including special topics in its report in order to give even deeper insights into what the company does. This year's narrative is dedicated to BGE's Mine Rescue Brigade and Works Fire Brigade. In these stories and pictures, we invite you to take a

look over the shoulders of our colleagues at work. What are their tasks, what challenges do they face, and what are their motivations for taking on such important responsibilities? What is the difference between a mine rescue brigade and a works fire brigade? All of these questions are explored in an in-depth interview. Discover some of the possibilities that exist for dealing with the stresses and strains that come with this line of work. And brace yourself to learn just how daunting the requirements are for carrying out rescues at height.

## Fire services have been with me since forever!

What would our lives be without fire and rescue services? Volunteer fire brigades, public fire brigades, works fire brigades, mine rescue brigades – all of these institutions share the same unselfish goal to rescue, extinguish, recover, help, or simply protect. As much as civilised life is kept in line by rules, on the roads, or at work for example, and despite all precautionary measures, unforeseeable events can still happen, or sometimes even wilful acts of arson.

While never having been an active firefighter myself, I have always been more than just a bystander to all these institutions. Privately as a sponsoring member, officially as Minister of the Interior with direct responsibility and many official encounters with the State Firefighting Academy and operations control centres, and today as a member of the advisory board of the Deutscher Feuerwehrverband (German Fire Brigades Association) and, in particular, as head of BGE with our mine rescue brigade and works fire brigade.

In many cases, this has forged friendships that have long outlasted our political functions. As a member of the advisory board of the Deutscher Feuerwehrverband, I am also the liaison representing the interests of BGE. We are currently working on a concept for having our works fire brigades and mine rescue brigades actively participate in one of the next major events of the Deutscher Feuerwehrverband. I am proud of the readiness for action and the efficiency of my comrades and colleagues because, for us, this service is always a job on top of a job. May you always come back from your missions in good health! I would like to express my heartfelt thanks to everyone who is actively engaged on behalf of our society or our company.

Stefan Studd, Chair of the Management Board



“ Every time I go into the mine, I am comforted by the fact that we have the dedicated mates in the mine rescue brigades and the men and women in the works fire brigades looking out for us, who can help if things get tricky. Thank you for training for the emergency that we all hope will never happen.

Steffen Kanitz, Deputy Chair of the Management Board



“ Having personally served on missions as a mine rescue team member, I have a deep respect for our mine rescue brigades from my own experience. When things get serious, these are the guys who get you out. Thank you for that!

Dr. Thomas Lautsch, Technical Managing Director

# "Nobody is left alone"

A conversation with experts about the tasks, challenges and future developments in the brigades of BGE

Every BGE mine site has at least one mine rescue brigade to itself. Some also have a works fire brigade. There is also the height rescue service. What are the tasks they have to carry out, how do they cooperate within and between the groups, and what technical developments do they have to deal with? Those are the main points we discussed in the following interview with Ingo Zipp (Asse Mine Rescue Brigade), Peter Osbelt (Morsleben and Gorleben Mine Rescue Brigades), Mario Patzschke and Andreas Berger (both Morsleben Works Fire Brigade), Jens Wehrmaker (Konrad Mine Rescue Brigade), and Hilmar Umbach and Nils Bialojahn (both Asse Works Fire Brigade). They also help shine a clarifying light on all the different terminology used in this context.

*Every child in Germany knows: if there's a fire or accident, you call 112. Why isn't that enough for BGE's sites? Why do we need our own dedicated works fire brigade?*

**Hilmar Umbach (HU):** Because access is restricted. And what we absolutely need is familiarity with the sites and the knowledge of what idiosyncrasies there are onsite. The works fire brigade knows the site in and out. Their members are specially trained for the specific conditions here.

*Could you give an example?*

**HU:** There are the hoisting machines, for one. They have to be safeguarded at all costs, because the whole mine operation depends on them. A hoisting machine is more important than an office building. So that's where the focus is. We also have to know what we're doing when it comes to the nuclear waste. There really is nothing ordinary about handling it; it's practically uncharted territory, and requires special equipment and the know-how to go with it.

And from time to time, we also have to deal with various hazardous materials, of course, such as diesel or other fuels. We can handle those just like the public fire brigades do.

*What is special about handling nuclear waste? How do you prepare for it?*

**HU:** Certainly with intensive training. So that everyone knows what they are getting themselves into. We have to assess the dangers in order to contain the situation so that no contamination can possibly get into the environment, for example as dusts or aerosols. In short, sometimes you have to leave the door closed at first, and look before you just go running in blindly.

**Peter Osbelt (PO):** That hasn't become an issue just yet! The waste at Asse isn't near the biosphere yet, but underground. That will only be a reality to deal with in a few years or so.

**HU:** Yet, we still have to start preparing now, and align our training with all that. Recruiting and training staff takes time. Ten years is not a lot of time. When the first barrel comes up, everything has to go smoothly.

*What does this training look like in concrete terms?*

**HU:** Hazmat training is important. Everyone who is in the works fire brigade should have completed an NBC course (nuclear, biological, chemical). There are extra courses for leaders, and another for radiation protection. We hold those ourselves thanks to the teammates who work in Radiation Safety. How do the detectors work, how do I decontaminate people or objects? These are all basic tasks, which everyone has to be able to do. We only work in the fire brigade on the side – our firefighters all do this on top of their full-time job!



Asse has its own works fire brigade. Monthly training exercises keep them prepared if there is a mission.

**Andreas Berger (AB):** Things are very similar for us in Morsleben. Our people are also supposed to receive NBC training. Unfortunately, they aren't always available. That's why it takes about ten years to get an entire crew fully trained. And there has to be regular practice. For some things, you need refresher courses or even stress tests.

*And the local fire brigades in the area don't have the capabilities of the works fire brigades?*

**Nils Bialojahn (NB):** Actually, that's right. They do get hazmat training. But most volunteer fire brigades would be extremely cautious if they came across a package with a black-and-yellow trefoil on it in some broken-down vehicle. They would certainly back off first and look for someone who's got some expertise. If the package is undamaged, nothing can happen. But the radiation symbol is so imprinted on everyone's mind that

the immediate thought is: anything related to radiation is dangerous.

*Are many of the firefighters also members of a local volunteer brigade as well?*

**HU:** 90 percent are active in the public fire services. But we always have someone who hasn't had any contact [with them] yet.

**NB:** Good personnel don't grow on trees, and we make sure that those teammates without fire brigade experience also get their training.

**AB:** We've even had colleagues we had to train from scratch because they'd never had anything to do with firefighting before. Their basic training was a two-week course covering Squad Member Part 1, Breathing Apparatus Wearers, and Module 1 of Radio Operator Training.





**“ I don't look the other way when others are in need – I want to help. To do so, we have to keep ourselves fit, both physically and mentally. Our regular exercises, especially training with new technology, are extremely important for this. The training of new teammates is always a part of this, getting to know them and practicing together until we can literally rely on each other blindly, 100 percent. But not everyone fits into the mine rescue brigade, and in the end it's up to the chief to decide who's in.**

Jens Wehrmaker, 55, Chief of the Konrad Mine Rescue Brigade & Fire Safety Officer

**NB:** We have a course going right now, in fact. Training often goes late into the evening. Having the will is important, but you've also got to have the time.

**PO:** Personnel planning is important in the brigade for that reason! If you only just now realise your chief is retiring, you won't have a trained replacement within two years.

*What is the hierarchy like?*

**Ingo Zipp (IZ):** In the mine rescue brigade, the hierarchy is quite flat. For the first year, you are a candidate, then you're a rescue team member. With more experience, you can become a squad leader, and after at least two years you can become a chief or deputy chief. These periods are laid down precisely in the guidelines for mine rescue brigades in Germany.

*What do you have to do if you want to become a member of the mine rescue brigade?*

**PO:** You can apply informally, and you'll be put on a waiting list. We are obligated to meet a minimum of 24 full-time equivalents – we always have 27 or 28 members in case someone is unavailable. Members have to live nearby, so as to be reachable at short notice. It doesn't hurt to know your way around a mine and to be able to operate equipment like a forklift or large machinery. You never know when you might find a vehicle blocking the way. I always need an adequate number of people around who are well-trained in radiation safety, in case we have a mission in the controlled area. There are so many things at play. Not to mention the human factor.

**Jens Wehrmaker (JW):** The mine rescue brigade has people from all departments. So you can just ask them, "I have a candidate from your

department. What's your impression of him or her?" And then you can also talk to the foremen below ground. So you ask around.

**IZ:** As long as the fortitude of character, physical fitness, and familiarity with each of the different trades are right, it's open to all.

**PO:** That's why we haven't had any women in the mine brigade so far. It's closely tied to the job description of working underground. This will certainly change once there are more women working in the mine.

**IZ:** It is a very challenging job. But at the end of the day, the hiring requirements are the same for everyone. And then there's the one-year probationary period. Everyone has to prove themselves. There have been cases where it just wasn't the right fit.

**JW:** In the end, the chief has the final say!

*Do the job descriptions for the brigades somehow automatically decide who goes where, for example, those who work on the surface go into the works fire brigade, those underground go into the mine rescue brigade?*

**Mario Patzschke (MP):** For us in the Morsleben Works Fire Brigade, both is possible. We have a mixed team here.

**PO:** It does make sense to have those working underground in the mine rescue brigade. They know their way around the mines. And those who work more on the surface, in workshops for example, know their way around better up there. They would be better off in the works fire brigade.

Asse mine: Transporting injured persons is one task that has to be practiced regularly





” The mine rescue brigade – a very challenging duty. Gritting the teeth and facing the physical as well as mental challenges, combined with the trusting teamwork and camaraderie of the mine rescue brigade, are what make this squad unique.

Ingo Zipp, 37, Chief of the Asse Mine Rescue Brigade

along suitably trained mine rescue teams. In that case, BGE will only have to provide the local squad leaders and equipment managers. Then we'll have a full mine rescue brigade on site again.

**HU:** The difference for the mine rescue brigade and the works fire brigade is: if I'm outside, the smoke rises upwards. For the mine brigade, it's a whole different thing. All the heat is trapped in the mine. The smoke stays inside and spreads throughout the entire mine.

**NB:** Despite all the differences, the mine rescue brigade and works fire brigade can also work together. We have practiced together above and below ground at the Asse mine. The works fire brigade then descended with the others into the mine and supported the rescue brigade at the decontamination site.

**IZ:** That is certainly possible under certain conditions and, of course, only in coordination with the operations management. But mining law clearly dictates who to call upon in the event of a fire, to save human lives, or to preserve material assets in a mine. And that is, in fact, the mine rescue brigade.

*How exactly does indirect firefighting work underground?*

**JW:** Rescuing people is everything. As long as it's still suspected that people are near the incident, you always try to go in. If it's only to preserve property, if it's absolutely clear that there are no people left in there, then the gallery is shielded so that oxygen can't get in and the fire can burn out. Tests have shown that a large wheel loader or dump truck with a ton of operating materials

**IZ:** We actually have just shy of 20 percent surface staff in the Asse Mine Rescue Brigade. We have 28 members. Those who are suitable for the mine rescue brigade, you don't just find everywhere. That's why we also take on members who work more often or exclusively on the surface.

*So, what is the difference between the brigades?*

**IZ:** One difference is in the response times. Mine rescue brigades won't be at the scene within five minutes. When it comes to the works fire brigade, the faster the better! And if speed is important, then it makes sense to have more surface firefighters in the works fire brigade. They are already above ground and so they simply get to the scene faster. The fire brigade goes straight to the fire and puts it out. The mine rescue brigade cuts off the air supply and smothers the fire.

*So extinguishing underground is indirect, on the surface is more direct?*

**PO:** Yes. Fast deployment time means direct firefighting. The mine rescue brigade, on the other hand, takes long times to set up. It takes a

comparatively long time before the teammates arrive, the equipment is on site, and the gear is put on. That's just the way it is. Every fire brigade is always streamlined to be as fast as possible. A mine rescue brigade, on the other hand, always has to sound out the situation first. Often it is not even obvious where or what is burning and how. In those cases, the mine rescue brigade would most often fight the fire indirectly. In other words, cut off the fire's oxygen supply by building dams or similar measures, and let the fire burn out in a relatively controlled manner.

**JW:** Also, it's not as easy to assemble the personnel in the mine rescue brigade. With a fire brigade, I can always call in more people, it's quick. If necessary, you can have 100 people on site in half an hour. In our mine rescue brigade, it's more like you can have ten teammates there in one hour.

**PO:** To get to Gorleben, we even need two hours. The two squads on site can clear the pit, but the mission doesn't really start until there are enough forces on site. Starting from 2024, a general contractor is set to backfill and dismantle the entire mine. The contractor is expected to bring



Konrad Mine Rescue Brigade in a hot exercise





Corleben mine: Mine rescue brigade trains in an exercise of rescuing buried victims

will burn for about three hours. After that, the fire is out.

PO: You can seal the routes around the fire pretty effectively with the weather doors and dams. If the fire is large, it can create a strong suction force, which reverses the direction of ventilation. Then it is always better to seal both sides.

*What kinds of ignition sources cause the most problems?*

IZ: Batteries cause enough problems. You can have devices connected to devices, multiple plugs in a power strip, and then more battery chargers on top of that. It is an enormous fire load when you've got 30 batteries stored in one cabinet.

*Is that a real problem?*

JW: We've had something like that happen on the surface – we had a charger smoke itself once. It didn't make a huge fire, but everything around it was affected by the soot and smoke.

IZ: That's why we're making further improvements in the structural fire protection. One charging cabinet has built-in fire detectors that shut the electricity off as soon as a fire is detected. If it gets above 70 degrees in the cabinet, it shuts the cabinet off. There is a CO2-based extinguishing system that suppresses fire for 45 minutes. That's the direction it's headed. The technology is always evolving.

JW: We'll also have the issue of electric vehicles at some point.

PO: Not just at some point!

IZ: They're here now. That's actually what I'm worried about most!

JW: They can only be water-cooled, and if you don't have the water, then...

IZ: We have extinguishing containers on the surface. But there's no space at all for those underground. So the only solution is: let it burn itself out!

**” Having the skills at all to help others is extremely important to me. These skills are put to the test right from the start. Anyone who passes the health test and the exercises wearing heavy breathing apparatus on the first go is pretty special. And the adrenaline level on a real mission is something else. Your heart rate goes up. When everything works, like smooth-running gears, that's a great feeling. You realise that's what you're doing this for!**

Peter Osbelt, 59, Head of the Morsleben & Corleben Mine Rescue Team



**But isn't that dangerous? Even for the pit itself?**

**IZ:** Extremely!

**AB:** The question is, what sort of batteries are allowed underground. That is the crucial point. The current lithium-ion batteries have passed the fire tests. So, we expect to see them approved for underground use soon.

**PO:** We are in the process of procuring two electric vehicles now. And, for that, we have to adapt the emergency strategy. We'll be setting up water logistics underground.

**If there is ever a potential contamination hazard: does speed take precedence, or do the firefighters always have to take the time to put on a suit before proceeding?**

**All:** Self-protection is the absolute priority, yes.

**Is that how it always plays out in practice?**

**JW:** Yes, and that's how it has to be. There are also checks to be performed before I can put on a breathing apparatus. Otherwise I put my own life or that of my teammates at risk. If someone has a medical restriction or doesn't feel well, or if a device isn't working 100 percent, then that's a clear abort criterion for everyone. At that moment, everyone turns around and goes back. No rescue takes place.

**So one person doesn't go back on their own?**

**JW:** No, no! We go in together and we come out together. If anything goes wrong during the approach, then we all turn back together. No one is left alone! Not anywhere!

**PO:** And the worst case would be: anyone who decides to go out and perform a rescue with good intentions but without putting on protective gear becomes a rescue case themselves.

**I guess there are times when teammates also need help after a mission? What kind of psychological support is there?**

**PO:** That is definitely an issue. It's worst when you have to recover a deceased person. That's one of our most difficult tasks to take on. That's when psychological support is needed. Fortunately, it's offered within the company. We had someone in our office who died. Two men tried in vain to revive their colleague. It was good that psychological help was available. Talking helps.

**JW:** We have the option of calling in emergency chaplains from the control centre of the Salzgitter Public Fire Brigade or from the City of Salzgitter. They come directly to the scene of the incident. When we had to rescue a fatally injured colleague – you just have to talk about it afterwards!

**AB:** We haven't had that so far. But it's something every fire brigade might have to face, of course. We can also alert the chaplains in the district. But until it happens to us personally, I guess we just push it out of our minds.

**IZ:** Everyone processes it differently – like everything in life. One person wants to talk, the other goes out for a drink, the next stays silent.

**So it makes good sense to offer psychological help?**

**JW:** No one is left alone. The least you can do is meet up after the mission or the next day. Get your equipment back in shape and talk about it.

After recovering a dead person, the only thing, of course, was to be glad that the mission was over. The next day, we packed our things away, cleaned our equipment, and talked. What had happened and what we could have done. Like we said, some people want to talk, others don't. It doesn't get easier just because you've seen it more often. You just process it faster.

**If I may change the tone, what has been the best, most formative experience for you during your time in the fire brigade?**

**PO:** We had a mission last year: Saturday at about 10 p.m. the alarm went off. Fifteen mine rescue

teammates arrived on site, even though it was the German Cup Final. We got the problem quickly under control. The adrenaline level on a real mission is something else. Your heart rate goes up. But when everything just works, like smooth-running gears, that's a great feeling. You realize: That's what you're doing this for!

**JW:** During an alarm drill, you stand by as a bit of an onlooker. When you see that all the cogs are meshing, that everything is working as it should – that does give you a certain satisfaction. When everything works on a day like that, you get kind of proud of the work you've been doing with the guys all year!



Asse mine: E-loader at the building material facility on the 720 m level

# "You only get one chance!"

Rescue at height in the mine rescue brigade and works fire brigade



When something happens in the mine, the mine rescue brigade comes to the rescue of their fellow workers. But what if the scene of the accident can't be reached on foot or by vehicle? What if the rescue has to be made from one level to the next, through a shaft? That's where the rescue brigade's height rescuers come in. Instead of heavy equipment and breathing apparatus, they bring ropes and hooks with them, but their job is no easier – quite the opposite.

First of all, every height rescuer is also a member of the mine rescue brigade. That means they already meet the requirements of having passed the breathing apparatus training courses and attending regular challenge training. Then, on top of that, they undergo further intensive training. But there is one thing, above all else, which they need from the outset: and that is a head for heights. Because you can't do this job without it! The height rescuers always work in conditions where there is a risk of falling; fear of heights is a criterion for exclusion. In trial seminars, for example, the rescuers can test whether they can climb out over guard railing at a height of more than 20 meters. It's at this point at the latest, the instructors say, where it becomes clear who will go on to attend the basic training for height rescuers, and for whom this training might not be the best thing after all.

The one-week basic training course is completed at central competence centres. For the Konrad mine, for example, this is in Leipzig. Here, again, the candidate height rescuers still have to face the next hurdle of overcoming their fear of heights. No one will find it easy to abseil down a 50 meter tower, even if they are doubly secured. For those who can't let go of the railing, the training ends right there. It happens. The height rescue instructors can tell you that. Not everyone can overcome a natural fear of heights, and not everyone is cut out to be lowered down a blind shaft. But even if the work seems more dangerous

– after all, falling is not an option since there's only one chance to get it right – rescue at a height is no more dangerous than any other mission. You always work with redundancies, like doubling the number of ropes. But these rules do increase the time it takes before you're properly ready to go.

Those who pass the training have to attend at least six practice exercises per year – on top of the regular mine rescue exercises – and a refresher course every four years. It must be ensured that all height rescuers have at least 40 rope hours per year. This is laid out in the additional guidelines for rescue at height, as is the target strength of ten people per site. The hierarchy in this group is even flatter than in the mine rescue brigade – you've got height rescuers and instructors.

Morsleben repository: Height rescuers in an exercise



In the exercises and missions, the latter tell you where the anchor points are for attaching the ropes, what equipment has to be used, and so on. This doesn't necessarily have to be a chief.

**” When rescuing at height, you can't make a single mistake; you only get one chance. But that's not to say it's more dangerous than any other rescue mission. We always work with double redundancies. Those are exactly the kind of rules that must always be observed. It takes a long time to learn it all.**

Peter Osbelt, 59, Chief of the Morsleben & Gorleben Mine Rescue Brigade

# What's the connection between a municipal fire chief and the Asse Works Fire Brigade

Portrait of Jan Fischer



Municipal fire chief is an elective office with a six-year term – elected in a voter-nominated process. The nominated candidate's suitability is ultimately decided by the council of the joint municipality.

Jan Fischer has a very special relationship with the Asse Mine Rescue Brigade. How is it special, you ask? Well, the 46-year-old has worked at the Asse mine for 30 years, was chief of the mine rescue brigade for eight years, and is now deputy chief.

Jan Fischer has been Municipal Fire Chief of the Elm/Asse joint municipality since 1 January 2021. In this function, he is responsible for 30 fire brigades and around 800 active firefighters. His range of duties is vast. We can't list all of them, but when he is not advising the joint municipality administration on the procurement of vehicles, equipment, and technical facilities, you could find him planning courses and helping to draw up alarm and deployment plans. Not only that, the engineer has to keep an eye on the firefighting water supply and to make sure the brigades do not fall below the minimum required number of firefighters. A lot of time also goes into the annual general meetings at the beginning of the year as well as celebrations and other events throughout the year.

One of the 30 brigades under his responsibility now is the works fire brigade of the Asse mine, which he has the authority to call upon even for operations outside the mine if needed.

What started off as a company fire department has since grown into a fully-fledged, state-recognised works fire brigade. You don't get awarded this status for nothing. You have to meet special requirements set out by the mining authority and the police directorate (now the Lower Saxony State Office for Fire Protection and Disaster Prevention). For example, you have to prove that the brigade has the minimum numbers of firefighters and minimum equipment. Another difference is that the operations manager can



Asse mine: Volker Haack, Jan Reuscher, and Peter Wolff discuss the situation during a training exercise

call on a works fire brigade for external missions, provided this does not interfere with their own duties to their parent company. Things get even more interesting when breathing apparatus or radiation protection is involved. The Asse Works Fire Brigade has not only high-quality equipment, but also the appropriate specialists on board.

In ordinary civilian life, Jan Fischer is a department manager at the Asse mine. Having started out as an apprentice, he has followed the archetypal career path that one could expect at a mine. This includes attending master school, or the so-called "upper class", with a course in operations management in Clausthal. He has even been Chair of the Works Council.

At present, Fischer is in fact back at school, by which we mean you will find him in the lecture halls of Clausthal University.

He joined the volunteer fire brigade at age 13 and has never lost his fascination for it – and now he can look back on more than 30 years of honorary service. Why does he do it? Fischer is inspired by helping others and by the camaraderie in the team. And so his simple answer is: "It's what I do. Body and soul!"

What does he wish for the future? For more young people to join up for the volunteer fire brigades again. And, "I don't really want our works fire brigade to become spread too thin outside the mine!"

# "Our way of dealing with extreme experiences and our attitudes towards them have changed"

In conversation with Monika Jendrny, Psychologist at the Institut für Psychologische Unfallnachsorge, Cologne

*What specific services does the Institut für Psychologische Unfallnachsorge offer?*

**Monika Jendrny (MJ):** We developed our psychological accident management concept for companies that have areas where work can be hazardous. We have been working on this together with organisations and companies of this nature since 1995. In essence, it has always been about

preventing or minimizing short- and long-term harm for those affected, who have been through extreme events.

*Did no one offer this sort of service before?*

**MJ:** The approach, the attitudes, and the way of dealing with things were just plain different back then. In the past, people would talk about

## Background:

The term occupational accident essentially encompasses all types of extreme events that can happen to employees at work or on the way to work. The Cologne Institut für Psychologische Unfallnachsorge (Institute for Psychological Accident Aftercare) developed a concept for adequately dealing with such experiences in the early 1990s in the form of its "psychological accident management program for companies with hazardous work areas". The focus is on a systematic procedure that is gone through together with the employers' liability insurance associations. At its core, it is about providing psychotherapy to undo psychological damage that may have resulted from extreme experiences. Nowadays, the German accident insurance institutions (Berufsgenossenschaften) and public-sector accident insurers (Unfallkassen) operate more or less in line with the principles of this concept.

Monika Jendrny holds a degree in psychology and has further qualified as a psychotherapist specializing in behavioural therapy. She heads the Institut für Psychologische Unfallnachsorge (ipu) and Psychologische Gesundheitsförderung (ipg) together with a colleague since 1 January 2013. In addition, she is a lecturer on the subject of the education and training of psychotherapists.

BGE has concluded a framework agreement with the Institute. The subject of this agreement is cooperation in the psychological counselling and psychotherapeutic care for employees after extreme experiences. Within this framework, among other things, the Institute has trained in-house psychological first responders.



traumatic shock at best. Since then, there has been a gradual realization that extreme experiences can have long-term repercussions on employees' health. Also, we've come a long way in the area of accident prevention. It is awarded much more importance now, especially in companies that have to perform hazardous tasks.

*How do people react to extreme events, such as severe accidents?*

**MJ:** Not everyone reacts in the same way, but there are patterns where people react in strikingly similar ways. Many often report that they just carry on functioning in the situation, perceiving themselves very differently from how they normally do. But another, very common response is to "freeze" in shock. In psychology, however, we hold the basic premise that people are designed to endure such events. Of course, people do react differently to such experiences. This has to do with the individual's coping skills, which can indeed vary. Current personal circumstances always play a role

in this, too. It makes a difference if someone is in a stable family situation or if they have just gone through a separation. We have to be aware that extreme experiences change people. Suddenly, you see things completely differently, and you wonder about the meaning of life. We all have coping skills; just sometimes we have to relearn them.

*What might a stress response look like, specifically?*

**MJ:** We speak of three criteria, which can vary in intensity. The first of these is avoidance. I try to repress the event, I don't want to see anyone, and simply don't want to be reminded of what happened. Then there's what we call intrusion. This refers to the recall and reliving of the event, caused by certain key stimuli. These are very intense and can bring on strong stress responses – often triggered by smells, sounds, etc. They cannot be controlled voluntarily by the affected person. The third we speak of is inner turmoil. You are in a permanent state of alarm. Sleep disorders and nightmares are typical symptoms of this.

*What does this mean for our colleagues who are active in the fire brigades, specifically?*

**MJ:** First of all, people who work in these areas actively confront extreme experiences already in advance – it's part of their training, as it were. At work, they will give thought – preemptively, so to speak – as to how likely it is that a stressful event will occur.



Extreme situations must be rehearsed in order to be mentally prepared for emergencies.

It is always good to get psychological first responders involved, who can be the first point of contact on the scene. While no one can or should be forced to talk about what they have experienced, they must always be offered the choice. The first three to four weeks will determine whether a stress disorder will develop. If so, then professional help will of course be needed.

Especially in fire and rescue brigades, the feeling of comradeship is very strong. This sense of belonging is an important resource for coping with the stresses that can arise. Many groups talk to each other very intensively after an incident. This mutual help – as long as it is self-motivated – is a good basis for coping with what has happened.

*And if this it is not the case, what then?  
Can everyone be helped?*

**MJ:** There has to be a willingness to accept help, of course, and the recognition that help is needed. Nobody ever wanted a bad accident to happen. Developing a new attitude is extremely important. It has nothing to do with anyone showing weakness or losing face.

Sometimes people decide that they don't want to or can't do this work anymore. We've had people who had experienced accidents numerous times, always coping well, only to develop clinical symptoms the next time. As I said, extreme experiences change people.

How the intervention goes, specifically, always depends on the individual case. Sometimes an emergency meeting, an intervention for all those concerned, or long-term psychotherapy is enough. In an emergency, we don't have a choice in how we respond – it just happens! That is why it's good that people are much more willing to accept help these days than they were a few years ago.





# Facts, figures, and faces of the brigades



Asse mine: Main reception point on the 658 meter level



Gorleben mine: Dismantling has begun



Asse ▲

Gorleben ▼



# Mine Rescue Brigade and Works Fire Brigade



# Mining sites of BGE



Mine Rescue Brigade



Rescue at Height



Works Fire Brigade

Members / Exercises per year

	Members / Exercises per year	of which	Members / Exercises per year	of which	Members / Exercises per year	of which
Asse	28 20	10 6	28 12			
Gorleben	19 17	— —	— —			
Konrad	32 25	9 6	— —			
Morsleben	28 25	10 6	25 12			



Gorleben



Konrad



Asse



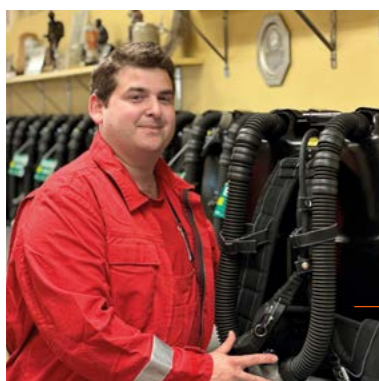
Morsleben

Saxony-Anhalt



” I like to help those in threatening situations, so I’m happy to be a member of the mine rescue brigade. We would all be very grateful for help, ourselves, if the situation were reversed. For these technical and physical challenges in dealing with difficult and sometimes life-threatening situations, we in the mine rescue brigade also regularly undergo further training of rescue operations. Cohesion and camaraderie are also important to us.

Matthias Heydorn, 55, Deputy Chief and Height Rescuer,  
Group Manager Emergency Standby, Asse



” I joined the mine rescue team in January 2006 and am also in the volunteer fire brigade. Helping others, the physical challenge, and the solidarity of the mine rescue team are what motivate me. The type of underground operations, the special techniques that we practice, being able to use them in an emergency, and then being able to remain calm in difficult situations – that’s something you only find in the mine rescue brigade.

Stefan Harms, 35, Equipment Manager, Squad Leader,  
Maintenance Supervisor, Gorleben



” I’ve been a member of the mine rescue brigade for 18 years, and I’m a height rescuer, too. The underground routes are long and arduous enough, but when you’re rescuing at a height, that’s on whole a different level. These physical challenges and the camaraderie make the mine rescue brigade a truly special squad.

Waldemar Ikkert, 40, Squad Leader,  
District Deputy Surface Machine Department, Konrad



” The mine rescue brigade is a community that has grown over decades and is more than the sum of its parts. Being a member is something special and the others are not just colleagues – but close mates who you talk straight with and can understand each other implicitly. This is absolutely vital because, in an emergency, we’ve got not only the dangers of fire or explosion underground, but also the hazards and psychological stresses of working in a mine.

Dr. Thomas Melcher, 36,  
Deputy Head of the Repository Monitoring Workgroup, Morsleben



” Providing the teammates with tested breathing apparatuses for exercises and missions is an important part of the equipment manager’s job. You need good comradeship and a high level of trust in the mine rescue team. But it also takes mental and physical fitness to help people in emergency situations.

Philipp Lange, 37, Equipment Manager and Rescue Team Member,  
Supervisor Electrical Department, Asse



” I want to be helped in an emergency and to be able to give back that help in an emergency. I have been in the mine rescue brigade for a year. I like the camaraderie, the exercises and the special challenge of dealing with people and technology. To cope with the tasks under cramped, unusual situations and also to take myself physically to my own limits at any time is special motivation for me.

Steffen Kanwischer, 27, Rescue Team Member,  
Maintenance Technician, Gorleben



” Being underground with heavy equipment – you really are in a different world. You’re genuinely cut off from the outside, in your own bubble. It’s hot and exhausting, but you’re not alone. Your teammates are there, you drill your moves until you’ve got them right, you help each other and those who are in need. It hardly gets much more special than that.

Thomas Lichtenberg, 54, Deputy Chief,  
Chief Safety Department, Konrad



” I’m in the volunteer fire brigade and, since the 1st of January 2022, I’m also in the mine rescue brigade. It’s important to me to be actively involved in rescue work, and not only to be there for others, but to get them out. The conditions underground, though, are even much more special and more challenging. That’s why we practice so much, always under emergency conditions. We have to be 100 percent attuned to each other and able to rely on each other.

Arne Schmidchen, 33, Rescue Team Member,  
Shaft Hower, Morsleben



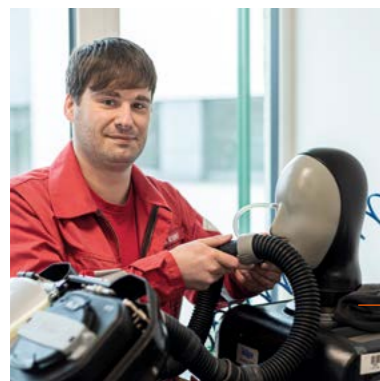
” Keeping a cool head, relying on cohesion and camaraderie are important for the work of the mine rescue brigade and for saving lives. This voluntary commitment strengthens the sense of community in the group and rouses the team spirit.

Sascha Wehrmann, 36, Candidate Mine Rescue Team, Surveying Technician, Asse



” In the mine rescue brigade, we’re like the Three Musketeers: one for all and all for one. Except of course – and luckily – there are more than three of us. But with this unbelievably strong bond, our solidarity, we can save injured people and prevent worse. Sure, in the dark, a kilometre below ground, you can get scared and start doubting your own abilities. For us, it’s part of the job to conquer those fears.

Mahir Sikira, 36, Rescue Team Member, District Deputy Ventilation Department, Konrad



” I have been a member of the mine rescue brigade for five years and am an equipment manager now. Being in the mine rescue brigade also means being able to handle all kinds of highly specialized equipment. The physical and mental demands are enormous. Hard physical work while wearing heavy breathing apparatus, in poor visibility, and on difficult routes: to be one of the few people who can endure all that and who can help my mates in an emergency, that’s an honour for me.

Martin Kolwig, 27, Equipment Manager, Miner (Large Equipment Operator and Hewer), Morsleben



” I’m a social person and really like helping others, so it was natural for me to join the mine rescue brigade to help others in an emergency. The special part is definitely the solidarity; everyone can rely on each other. One challenge in my eyes is the fact that the mine is constantly changing. So, the situation also keeps changing and you have to take a different course of action every time.

Rene Körtge, 29, Rescue Team Member, Industrial Mechanic on Surface, Asse



” I was already in the children’s fire brigade at eight years old, and I’ve never lost the will and fascination of being of service. But when you compare it to the volunteer fire brigades, you really notice how the works fire brigade has completely different resources to work with and can do much more to build up and train its members. Today, I am not only in the works fire brigade, but also right at home in the community as a deputy district chief and as a tanker driver in the city. Anyone who is in the fire brigade just has this help gene, which you can’t switch off.

Andreas Berger, 46, Deputy Chief of Works Fire Brigade, Electrical Design Engineer, Morsleben



” Thanks to the varied training in things like rescue of persons, radiation protection, or technical assistance, we are perfectly prepared in the works fire brigade for emergency situations at the mine. Even now, we are getting ready for the future and the upcoming tasks involved in the retrieval. And we are well aware that we have to be ready at all times for a mission in an area that, let’s face it, is really too small.

Timo Hinze, 43, BA Manager/Wearer, CAD Specialist Electrical Engineering, Asse Works Fire Brigade



” I like to go in and help where others don’t dare to go. The training we are offered, so that we are able to pull off these tasks in dangerous situations, is highly diverse. We operate a fire brigade in too cramped a space despite having so many tasks to perform, including fire protection, NBC operations, or even assistive services. The works fire brigade has to prepare itself for the retrieval. We will need more personnel for this, who we will also train in advance. On top of that, we need to build a new fire station to meet all the requirements.

Peter Wolff, 53, BA Manager/Wearer, System Administrator for Radiation Protection, Asse Works Fire Brigade



” I am in the works fire brigade because I like being a firefighter and helping other people. In this task, I grow beyond myself every day and can contribute meaningfully to the company. It’s not just the wide range of tasks, but also the interactions between all the colleagues and the operational requirements that I find especially engaging in the works fire brigade. For these tasks, and for the recovery as well, there are concepts that have to be drawn up and prepared by us and the specialist departments.

Tessa Schiller, 24, Firefighter, Administrator for Radiation Protection, Asse Works Fire Brigade



Konrad ▲

Morsleben ▼



Konrad mine: Preparations are made for replacing the guide tower



Morsleben repository: Demonstration structure in the main anhydrite

# Financial statements

for the fiscal year from 1 January to 31 December 2022

Balance as of 31 December 2022

## Assets

in thousands of euros	As of 31/12/2022	As of 31/12/2021
<b>A. Fixed assets</b>		
I. Property, plant, and equipment		
Freehold and equivalent real estate rights and buildings including buildings on third-party land	3,977	4,045
	3,977	4,045
II. Financial assets		
Shares in affiliated companies	690	690
	690	690
	<b>4,667</b>	<b>4,735</b>
<b>B. Current assets</b>		
I. Stock	15,171	13,837
	15,171	13,837
II. Receivables and other assets		
1. Accounts receivable	176	172
2. Receivables from the shareholder	124,698	122,535
3. Receivables from affiliated companies	161	173
4. Other assets	12,738	11,762
	137,773	134,642
III. Bank balances	161	515
	<b>153,105</b>	<b>148,994</b>
<b>C. Accruals and deferrals</b>		
	<b>128</b>	<b>295</b>
	<b>157,900</b>	<b>154,024</b>
<b>Total assets</b>	<b>3,373</b>	<b>3,384</b>

## Liabilities

in thousands of euros	As of 31/12/2022	As of 31/12/2021
<b>A. Equity</b>		
I. Subscribed capital	2,825	2,825
II. Capital reserve	37	37
III. Retained earnings	1,942	1,942
IV. Annual net profit	0	108
	<b>4,804</b>	<b>4,912</b>
<b>B. Provisions</b>		
1. Provisions for pensions and similar obligations	16,836	16,906
2. Other provisions	67,435	60,355
	<b>84,271</b>	<b>77,261</b>
<b>C. Liabilities</b>		
1. Trade payables	46,122	48,879
2. Liabilities towards the shareholder	3,768	3,652
3. Liabilities towards affiliated companies	908	1,419
4. Other liabilities	18,027	17,901
	<b>68,825</b>	<b>71,851</b>
	<b>157,900</b>	<b>154,024</b>
<b>Total liabilities</b>	<b>3,373</b>	<b>3,384</b>

## Profit and loss statement

for the period from 1 January to 31 December 2022

in thousands of euros	As of 2022	As of 2021
1. Revenue	540,900	476,003
2. Other operating income	11,448	12,069
	552,348	488,072
3. Material expenses		
a) Cost of raw materials, consumables, supplies, and purchased goods	38,206	30,399
b) Cost of purchased services	276,610	229,875
	314,816	260,274
4. Personnel costs		
a) Salaries and wages	168,732	157,898
b) Social security contributions and expenditure on pensions and other benefits	41,302	39,846
	210,034	197,744
5. Depreciation of property, plant, and equipment	68	28
6. Other operating expenses	26,878	27,670
	551,796	485,716
	552	2,356
7. Income from investments	0	108
8. Income from loans under financial assets	0	85
9. Interest and similar expenses	480	2,171
10. Taxes on income and earnings	-3	216
<b>11. Profit after taxes</b>	<b>75</b>	<b>162</b>
12. Other taxes	75	54
	150	216
<b>13. Annual net profit</b>	<b>0</b>	<b>108</b>

## Annex for the fiscal year 2022

### General information

The financial statement of the Bundesgesellschaft für Endlagerung mbH (BGE) for the fiscal year from 1 January 2022 to 31 December 2022 was prepared on the basis of the accounting provisions in the German Commercial Code (HGB). In addition to these regulations, the provisions of the Act on Limited Liability Companies (GmbHG) and the articles of association were observed. According to the size classes specified in § 267 HGB, BGE is a large corporation.

The profit and loss statement was prepared in accordance with the total cost method pursuant to § 275 (2) HGB.

BGE is entered in the Commercial Register of the Hildesheim Local Court under HRB 204918. The sole shareholder is the Federal Republic of Germany, represented by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). The company's registered office is in Peine.

### Information on accounting and valuation methods

The company, by its very nature, does not own any tangible fixed assets to be capitalised, since BGE transfers to the BMUV ownership or rights to movable assets procured for the purpose of operation and financed by the BMUV at the time when BGE itself acquires these rights.

The property, plant, and equipment reported is the balance for the administration building (including land) in Peine, acquired in 2021. This was primarily funded with the capital of the predecessor

company Deutsche Gesellschaft zum Bau und Betrieb von Endlagern für Abfallstoffe mbH (DBE). The balance is drawn up under fixed assets at acquisition cost and has been offset against the tenant's loan that was granted to PALEA Grundstücks-Verwaltungsgesellschaft mbH & Co. KG in the same amount. Fixed assets are being depreciated on a straight-line basis over their useful life (administrative building over 33 years, outdoor facilities over ten years).

Other fixed assets relating to the Peine property were also valued at acquisition cost less investment grants, so the respective asset is shown in the balance sheet with a book value of zero. Accordingly, there is no depreciation for this.

The shares in affiliated companies shown under assets are valued at acquisition cost. Loans are shown at their nominal value.

Advance payments are stated at their nominal value.

Stock, receivables and other assets are valued at their nominal value. Value adjustments are made where necessary.

Cash and cash equivalents are stated at their nominal value.

Prepaid expenses relate to expenses prior to the balance sheet date, representing expenses for a specific period after that date.

Subscribed capital is carried at nominal value. Provisions are recognised at the amount required to settle the obligation in accordance with reasonable commercial judgement.

## Annex for the fiscal year 2022

Provisions with a remaining term of more than one year, with the exception of provisions for pensions, are discounted at the average market interest rate of the past seven years corresponding to their remaining term.

Provisions for pensions are measured on the basis of actuarial calculations using the projected unit credit method taking into account the "2018 G Mortality Tables" of Prof. Dr. Klaus Heubeck, Cologne. The pension obligations carried as liabilities are based exclusively on the benefit regulations and the defined contribution pension plan of Bochumer Verband for individual commitments. Provisions for pensions are measured at the average market interest rate of the past ten years published by the Deutsche Bundesbank (§ 253 (2) HGB). With an assumed duration of 15 years, this corresponds to 1.78% (previous year 1.87%). The salary trend was adjusted and is included at 2.75% (previous year 2.5%), while the pension trend remains unchanged at 2.0% and 1.0% for commitments with an adjustment guarantee. Age- and gender-dependent probabilities are used for the expected employee development (fluctuation).

The difference resulting from the different valuation of pension provisions at the seven-year or ten-year discount rate (€675,000) is not subject to a distribution block in accordance with § 253 (6) sentence 2 HGB due to sufficient free reserves. In addition, provisions are formed for contingent liabilities from pension claims. The provisions are generally discounted in accordance with their term (§ 253 (2) HGB). As the remaining term is less than one year, the provisions have not been discounted.

Provisions for anniversary bonuses within other provisions are also measured on the basis of actuarial calculations using the projected unit credit method, taking into account the "2018 G Mortality Tables" of Prof. Dr. Klaus Heubeck, Cologne. The current discount rate is 1.44% (previous year 1.35%).

Provisions for death benefits are also measured on the basis of actuarial calculations using the projected unit credit method, taking into account the "2018 G Mortality Tables" of Prof. Dr. Klaus Heubeck, Cologne. The current discount rate is 1.44% (previous year 1.35%).

Other provisions include amounts payable for services rendered by subcontractors and fees for the ongoing application procedure for decommissioning the Morsleben radioactive waste repository and for decommissioning the Asse II mine. The other provisions (personnel obligations, sales tax risks, and financial statement costs) take into account all identifiable risks and contingent liabilities.

Liabilities are stated at the settlement amount.

The excess of deferred tax assets over liabilities is not reported. The valuation of deferred taxes is based on a tax rate of 29.3% (15.82% for corporation tax, including solidarity surcharge, and 13.48% for trade tax). Differences between commercial law and tax law arise in particular with regard to pension provisions and procedural costs for decommissioning the Morsleben repository for radioactive waste and the Asse II mine.

The accounting and valuation methods have not changed compared to the previous year and have been applied consistently.

### Notes on the balance sheet

The fixed assets include property, plant, and equipment as well as shares in the subsidiary BGE TEC. For information on developments in the reporting year, please refer to the statement of changes.

The receivables from the shareholder (€124.698 million; previous year €122.535 million) result from the settlement of BGE's provision of services. Receivables from affiliated companies (€161,000; previous year €173,000) relate exclusively to BGE TEC and result from the invoicing of services in the scope of the agency and service agreement. All receivables, with the exception of receivables concerning long-term provisions (€28.032 million; previous year €28.744 million), and other assets have a remaining term of up to one year.

Other assets (€12.738 million; previous year €11.762 million) relate to receivables from the transfer of invoices to the applicant in the scope of product control as well as tax receivables and have a remaining term of up to one year.

Cash and cash equivalents (€161,000; previous year €515,000) mainly consist of short-term bank balances.

The capital reserve in the amount of €37,000 is made up of capital shares of the predecessor

companies DBE and Asse-GmbH that were not used to increase the subscribed capital.

BGE has made use of the option under Art. 67 (1) sentence 1 of the Introductory Act to the Commercial Code (EGHGB) to distribute the conversion expenses of pension provisions from the introduction of the Accounting Law Modernisation Act (BilMoG) as of 1 January 2010 on a straight-line basis over a maximum period of up to 15 years. The annual amount of €214,000 is included in other operating expenses. As of the balance sheet date, the shortfall in pension provisions thus amounted to €430,000.



## Annex for the fiscal year 2022

### Other provisions

Other provisions include the following items:

in thousands of euros	As of 31/12/2022	As of 31/12/2021
Provisions for outstanding invoices	43,249	36,108
Provisions for personnel obligations	8,472	7,662
Provision for procedural costs for decommissioning the Morsleben repository for radioactive waste	6,413	6,934
Value-added tax (VAT) risks	5,803	5,983
Provision for procedural costs for decommissioning the Asse II mine	3,418	3,600
Financial statement costs	80	68
<b>Total</b>	<b>67,435</b>	<b>60,355</b>

The provision for financial statement costs for 2022 remains unchanged at €68,000. The difference in the amount of €12,000 results from services as yet uncharged for fiscal 2021.

The personnel-related provisions include in particular obligations from vacation and time credits.

Liabilities to affiliated companies result entirely from the service relationships with BGE TEC. Liabilities to the shareholder consist entirely of trade accounts payable.

Other liabilities in the amount of €18.027 million (previous year €17.901 million) essentially include obligations from VAT and wage tax payable

(€18.006 million; previous year €17.796 million) for the months of November and December as well as other payment obligations towards personnel (€26,000; previous year €92,000).

All liabilities have a remaining term of up to one year.

There are no liabilities secured by liens or similar rights.

The €3.373 million reported in the balance sheet relates to security deposits held in trust for obligations under the Lower Saxony Nature Conservation Act for compensation and replacement measures in the Gorleben area. The trust assets are accordingly matched by trust obligations in the same amount.

### Notes on the profit and loss statement

Revenue breaks down by activity as follows:

in thousands of euros	As of 2022	As of 2021
Konrad	286,956	250,547
Asse	127,717	127,890
Morsleben	61,873	48,693
Site selection	34,290	20,116
Product control	16,888	15,711
Gorleben	12,779	12,647
Other revenue	397	399
<b>Total</b>	<b>540,900</b>	<b>476,003</b>

Other revenue comprises the services for the subsidiary BGE TEC (€324,000; previous year €333,000) and revenue from the canteen business (€73,000; previous year €66,000). All revenue was generated domestically in Germany.

Other operating income (€11.448 million; previous year €12.069 million) includes income from other periods (€10.981 million; previous year €11.223 million). These are provisions no longer required for outstanding contractor invoices (€10.932 million; previous year €4.301 million) and other reimbursements (€49,000; previous year €103,000) from the trade union IG BCE mainly for personnel expenses and back calculations from attendance fees of supervisory board members for 2021.

The material expenses reported show the cost of raw materials, consumables, and supplies (€38.206 million; previous year €30.399 million) and the cost of purchased services (€276.610 million; previous year €229.875 million). The cost of purchased services mainly includes provisioning for outstanding invoices, work and other service contracts, temporary employment, guard services, maintenance measures, and energy costs. This provisioning (€43.249 million) includes expenses from other periods in the amount of €14.532 million and income from reversal of provisions in the amount of €9.875 million.

Costs of pensions amounting to €853,000 (previous year €1.363 million) are shown under personnel costs. These costs are influenced by

## Annex for the fiscal year 2022

the annual actuarial calculation and adjustment of the pension obligations.

The depreciation (€68,000; previous year €28,000) relates to the acquisition in 2021 of the administration building with outdoor facilities in the company's own name.

The other operating expenses (€26.878 million; previous year €27.670 million) mainly comprise general administrative expenses, including rental costs, expert opinion and external consulting services, incidental personnel expenses, and fees relating to supervision under nuclear legislation. This item also includes the annual pro rata conversion expense in the amount of €214,000 resulting from the introduction of BilMoG relating to the underfunding of pension provisions as of 1 January 2010.

Interest expenses in the amount of €480,000 (previous year €2.171 million) primarily relate to expenses from compounding of provisions (€479,000; previous year €1.052 million).

Taxes on income and earnings to the sum of -€3,000 result from refunds from the taxes applied in the previous year. Taxes on income for fiscal 2022 are not due because of less tax owed in the previous year.

### Contingent liabilities and other financial obligations

The company conducts its business operations in Peine. It acquired the building there in its own name in 2021. In order to achieve its goals, the company has rented additional space in buildings and storage areas and has further obligations amounting to €5.846 million. Financial obligations from other existing rental, tenancy, or leasing contracts amount to €632,000 for the agreed terms on the balance sheet date. Altogether, the existing contracts result in financial obligations in the amount of €6.478 million.

To secure existing and future claims of Volksbank eG Braunschweig Wolfsburg from BGE TEC, there is a "guarantee for individual claims" in the amount of €750,000. It is not assumed that this will be used because BGE TEC has sufficient liquidity.

### Other information

#### Members

#### Management board

The company was managed in 2022 by the following managing directors:

**Stefan Studt, Rickert,**  
Chair of the Management Board

**Steffen Kanitz, Dortmund,**  
Deputy Chairman of the Management Board

**Dr. Thomas Lautsch, Peine,**  
Technical Managing Director

In its meeting on 29 November 2022, the supervisory board decided that, in 2023, it would fill a vacant member position on the management

board with a woman in accordance with § 77a GmbHG, and a labour relations director (m/f) will be appointed in accordance with the German Co-Determination Act (MitbestG).

Management remuneration in the 2022 reporting year comprises fixed salary payments including fringe benefits. Performance-related remuneration components are not paid.

A total of €7.469 million was set aside to cover pension obligations to the former members of the management of a merged legal entity, whose current emoluments amounted to €594,000.

#### Management board remuneration in 2022

in thousands of euros	Base salary	Fringe benefits	Other remuneration	Total remuneration pursuant to § 285 HGB	Addition of provisions for pension funds pursuant to § 249 HGB
Managing director					
Stefan Studt	295	9	0	304	123
Steffen Kanitz	275	19	0	294	153
Dr. Thomas Lautsch	275	2	0	277	46
<b>Total amount</b>	<b>845</b>	<b>30</b>	<b>0</b>	<b>875</b>	<b>322</b>

## Annex for the fiscal year 2022

### Supervisory board

With the number of employees permanently exceeding 2,000, the company comes within the purview of the German Codetermination Act (MitbestG) since 2021. The Codetermination Act prescribes, among other things, equal representation on the supervisory board. The constituent meeting of the new, equally represented supervisory board took place on 30 November 2021. It consisted of eight supervisory board members on the shareholder side, appointed at the end of August 2021, and eight on the employee side. The latter were court appointed on 7 October 2021, initially for a fixed term until the end of the 39th calendar week 2022.

The supervisory board has the following members:

#### Dirk Alvermann

Employee Representative of BGE

#### Christina Egelkraut

Employee Representative of BGE

#### Dr. Markus Fritschi

Deputy CEO of the Swiss National Cooperative for the Disposal of Radioactive Waste (Nagra), since 24 May 2022

#### Dr. Christian Greipl

Head of Directorate, BMUV, since 31 March 2022

#### Prof. Dr. Karin Holm-Müller

Head of Chair, Resource and Environmental Economics, University of Bonn

#### Franz-Gerhard Hörnschemeyer

Trade Union Secretary of IG BCE, (Deputy Chair)

#### Dr. Holle Jakob

Unterabteilungsleiterin im Bundesministerium für Finanzen (BMF)

#### Dr. Andreas Kerst

Head of Division, Federal Ministry of Finance

#### Sylvia Kotting-Uhl

Former Member of the Bundestag

#### Christian Kühn

Parliamentary State Secretary, BMUV, since 31 March 2022 (Chair)

#### Carsten Meyer

Employee Representative of BGE

#### Christina Offermanns

Employee Representative of BGE

#### Dr. Thomas Schröpfer

Employee Representative of BGE

#### Lilian Tschan

State Secretary, Federal Ministry of Labour and Social Affairs (BMAS), since 24 May 2022

#### Marike Vornkahl

Trade Union Representative of IG BCE

#### Sebastian Zwetkow-Tobey

Employee Representative of BGE

Members who left are:

#### Jochen Flasbarth

State Secretary, BMU, until 8 December 2021 (Chair), left on 1 March 2022

#### Dr. Wolfgang Cloosters

Head of Directorate-General, BMUV, until 31 December 2021, left on 6 March 2022

#### Lena Daldrup

Head of Division, BMAS, left on 20 March 2022

#### Ursula Borak

Head of Division, Federal Ministry for Economic Affairs and Energy (BMWK), left on 22 March 2022

#### Jens Lindner

Employee Representative, BGE, left on 8 September 2022

Para. 6.2.2 of PCGK notwithstanding, no age limit has been set for occupying a member seat on the BGE supervisory board, in order to ensure that additional specific skills and experience can be introduced to the benefit of the company.

## Annex for the fiscal year 2022

Management reports to the supervisory board in accordance with § 90 of the German Stock Corporation Act (AktG). In addition, reservations of approval in favour of the supervisory board are laid down in BGE's articles of association for transactions of fundamental importance. These are, in particular, decisions and measures that could lead to a significant change in the business activity within the framework of the articles of association or to a fundamental change in the Company's net assets, financial position, operational results, or risk structure.

By resolution of the shareholders' meeting on 23 August 2017, the attendance fee for supervisory board members who are neither members of the German Bundestag or the German Federal Government, nor are in a service or employment relationship with the Federal Republic of Germany, was set at €4,000.00 per year.

The following supervisory board members received the following attendance fees for 2022:

• Dirk Alvermann	€ 4,000.00
• Christina Egelkraut	€ 4,000.00
• Dr. Markus Fritschi	€ 2,666.67
• Prof. Dr. Karin Holm-Müller	€ 4,000.00
• Franz-Gerhard Hörnschemeyer	€ 4,000.00
• Sylvia Kotting-Uhl	€ 4,000.00
• Jens Lindner	€ 3,000.00
• Carsten Meyer	€ 4,000.00
• Christina Offermanns	€ 4,000.00
• Dr. Thomas Schröpfer	€ 1,333.33
• Marike Vornkahl	€ 4,000.00
• Sebastian Zwetkow-Tobey	€ 4,000.00

These members of the supervisory board were paid attendance fees totalling €43,000 in 2022. For fiscal 2021, there was a recalculation of the 2021 attendance fees in the total amount of €3,000 for eight members of the supervisory board. These were offset against the payout for 2022.

In addition to the existing mediation committee, the executive committee and the audit and risk committee were established in May 2022. These committees are equally represented by members of the shareholder and employee sides. The task of these committees is to prepare decisions of the general assembly, which is responsible for making the final decisions.

### PCGK – Public Corporate Governance Kodex

The company issued a declaration of conformity in accordance with the Federal Public Corporate Governance Kodex (PCGK) for 2021 in July 2022 and published this on the company's website.

Following the audit of the 2021 annual financial statements, the information relating to certain periods of membership of the supervisory board members was adjusted at the end of 2022 and the PCGK report was published again at the end of February 2023. The declaration of conformity for 2022 is to be published in June 2023.

### Deutscher Nachhaltigkeitskodex

In 2022, BGE authored the sustainability code report for 2021, which it then published at the beginning of March 2023. The declaration of conformity for 2022 is to be published during the course of 2023. These reports do not replace the financial declaration pursuant to § 289b ff. of the German Commercial Code (HGB).

### Number of people employed

On an annual average, there were 2,038 people in the company's employ in the sense of § 267 (5) HGB.

Sites	Annual average employees	Of which women
Salzgitter	121	63
Wolfenbüttel/Remlingen (Asse)	576	114
Peine/Berlin	677	276
Gorleben	36	3
Morsleben	158	24
Konrad	470	38
<b>Total employees</b>	<b>2,038</b>	<b>518</b>

### Auditor's fee

The total fee for the auditor calculated for the fiscal year is shown in the BGE consolidated financial statements.

### Shareholding

One shareholder owns 100% of the interest in BGE TEC, Peine.

In fiscal 2022, BGE TEC generated a net profit of €136,000.

As of 31 December 2022, the equity of BGE TEC amounted to €2.783 million.

Peine, 31 March 2023

**Stefan Studt**  
Chair of the Management Board

**Steffen Kanitz**  
Deputy Chair of the Management Board

**Dr. Thomas Lautsch**  
Technical Managing Director

## Development of fixed assets

01 January 2022 to 31 December 2022

### Acquisition and manufacturing costs

### Value adjustments

### Carrying amounts

in thousands of euros	As of	Additions	Investment grants	Retirements	As of	Accumulated value adjustments 01/01/2022	Additions, depreciation	Retirements	Accumulated value adjustments 31/12/2022	As of	As of
	01/01/2022				31/12/2022					31/12/2022	31/12/2021
<b>Property, plant, and equipment</b>											
1. Freehold and equivalent real estate rights and buildings including buildings on third-party land	4,073	0	0	0	4,073	28	68	0	96	3,977	4,045
	<b>4,073</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,073</b>	<b>28</b>	<b>68</b>	<b>0</b>	<b>96</b>	<b>3,977</b>	<b>4,045</b>
<b>Financial assets</b>											
1. Shares in affiliated companies	690	0	0	0	690	0	0	0	0	690	690
2. Other loans	(€ 250)	0	0	0	(€ 250)	0	0	0	0	(€ 250)	(€ 250)
	<b>690</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>690</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>690</b>	<b>690</b>
<b>Total fixed assets</b>	<b>4,763</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,763</b>	<b>28</b>	<b>68</b>	<b>0</b>	<b>96</b>	<b>4,667</b>	<b>4,735</b>

## Management report for the fiscal year 2022

### Company basics

When Germany passed the Act to reform the organisational structure in matters of final disposal of nuclear waste on 30 July 2016, there was a shift in responsibilities among the institutions concerned. The federal government established the Bundesgesellschaft für Endlagerung mbH (BGE) to perform the tasks of final disposal in accordance with the Act on the peaceful use of nuclear energy and on the protection against its risks (Atomic Energy Act, AtG) and to see the site selection procedure carried out in accordance with the Site Selection Act (StandAG). BGE is organised as a company under private law and is owned by the German federal government. The sole shareholder of BGE is the Federal Republic of Germany, represented by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV).

By a decision dated 24 April 2017, last amended in the decision dated 28 February 2022, the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) conferred upon BGE the duties of the federal government, pursuant to § 9a (3) sentence 1 AtG, and the sovereign powers required for this purpose, pursuant to § 9a (3) sentence 3 (first half) AtG.

Duties conferred include:

1. the construction, operation, and decommissioning of repositories as well as the operation and decommissioning of the Asse II mine in accordance with § 57b AtG with all associated duties pursuant to § 9a (3) sentence 1 AtG,
2. the sovereign powers to issue administrative acts in accordance with
  - a. § 3 (1) sentence 2 of the Nuclear Waste Disposal Regulation (AtEV), confirming the suitability of waste packages for final storage,

- b. § 2 (5) sentence 1 number 1 in conjunction with sentences 2 and 3 of the Act reorganising responsibility for nuclear waste management (EntsorgÜG), which establish the eligibility of waste packages containing radioactive waste with negligible heat generation to be handed over to the third party under § 2 (1) sentence 1 EntsorgÜG,
- c. § 7 (2) AtEV, by which the waste is retrieved for emplacement in a repository, and
- d. § 34 (1) or (2) in conjunction with § 35 (1) of the Geological Data Act (GeolDG), deciding on the public provision of non-governmental technical or assessment data in accordance with the provisions laid down in the formal notice of the transfer of tasks (Übertragungsbescheid).

Having been conferred the duties of the federal government pursuant to § 9a (3) sentence 1 AtG, BGE also became the project sponsor within the sense of StandAG.

BGE is additionally deemed a building owner for matters governed by building regulations, with the exception of the Konrad project. Building owner status for the Konrad project was transferred to the federal government with effect from the end of June 2019. In order to fulfil its tasks, the federal government has set up a building authority ("privileged construction" in accordance with § 74 of the Lower Saxony Building Code and supervision of the construction work) at the Federal Environment Agency (UBA); BGE has also been authorised to fulfil all building owner's tasks/duties not incumbent on the UBA in the Konrad project on behalf of the federal government.

Furthermore, in a letter dated 13 September 2019, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) conferred full exclusive responsibility for developing repositories for high-level radioactive waste to BGE.

On 3 June 2022, after approval by the supervisory board, the BGE shareholders' meeting decided to close the Gorleben mine because the Gorleben salt dome had been eliminated in the first step of the site selection procedure based on the geological requirements and criteria imposed by the laws. BGE was given the mandate to close the mine. Its closure includes backfilling the mine and shafts using the salt from the salt stockpile and dismantling the surface facilities, provided no other use can be found for these surface facilities.

With the number of employees permanently exceeding 2,000, the company comes within the purview of the German Codetermination Act (MitbestG) since 2021. The Codetermination Act prescribes, among other things, equal representation on the supervisory board. The constituent meeting of the new, equally represented supervisory board took place on 30 November 2021. It consisted of the eight supervisory board members on the shareholder side, appointed in October 2021, and the eight on the employee side. The latter were court appointed on 7 October 2021, initially for a fixed term until the end of the 39th calendar week 2022. The employee representatives were elected in September 2022 in accordance with the Codetermination Act.

BGE employs personnel who have been appointed or provided by the Federal Office for Radiation Protection (BfS).

The company's contracts with third parties are awarded in accordance with public procurement law.

BGE has a wholly owned subsidiary, BGE TECHNOLOGY GmbH (BGE TEC). Its field of activity includes the provision of consulting and engineering services as well as operational services for the construction, operation, and disposal of nuclear and conventional facilities.

### Control system

BGE's mission is to guarantee the safe disposal of radioactive waste. In this way, it contributes to the protection of humanity and the environment and to solving a socio-political problem.

In fulfilling this mission, the company pledges to the responsible and transparent implementation of the tasks entrusted to it. These include constructing and operating the Konrad repository, retrieving the radioactive waste from and decommissioning the Asse II mine, keeping open and decommissioning the Morsleben repository, and carrying out the closure of the Gorleben mine. Further duties include product control to ensure that only approved waste packages are emplaced in the Konrad repository, container development, and selection of the site that guarantees the best possible safety for final disposal of high-level radioactive waste.

Safety is the top priority in the fulfilment of all duties. This includes occupational safety, health protection, and operational and long-term safety.

The company is equally committed to the responsible use of the financial resources made available to it for these duties, and to compliance with all legal requirements and burdens of proof relating to the award of contracts and the use of funds by a public-sector enterprise. In particular, the principles of economy and efficiency must be observed. Profitmaking is not the goal of the company. It furthermore abides by the special guiding norms under nuclear and mining law.

The mission statement and corporate goals form the guidelines for carrying out the corporate duties. These guidelines are supplemented by the articles of association, the rules of procedure for management, the "financial statute (set out by the shareholder) on economic management and

## Management report for the fiscal year 2022

financial and asset management within BGE", the internal regulations based on this statute, and the economic plan approved by the shareholder as well as the schedules and progress plans of the projects.

The integrated management system incorporates tools such as the compliance, data protection, energy, sustainability, quality, risk, safety, and environmental management systems, at their respective levels of maturity, that serve to ensure that the company's goals are met. It is being developed incrementally and assessed yearly in the course of management review. In preparation for certification of the integrated management system, an audit was performed to confirm its compliance with the requirements of ISO 9001 (International Organization for Standardization), KTA 1402 (Nuclear Safety Standards Commission), and the Guideline on Safety Management in waste management

organisations of the Nuclear Waste Management Commission (ESK). The energy management system was recertified in 2022.

For the future development of a sustainability strategy for BGE, the personnel, social, economic, and ecological aspects of the organisation are being looked into. Sustainable development also ought to ensure the long-term existence of our company. This philosophy is to be systematically implemented in all internal processes and structures.

The company uses various financial and non-financial performance indicators to manage its activities in the interests of the corporate goals and the implementation of the corporate strategy. These are continually reviewed and presented in the reporting system on the basis of the internal regulation "Building Blocks of Corporate Management".

Key financial performance indicators are the costs of the projects and associated general overheads. The 2022 budget anticipated net costs of €533.397 million. In contrast to this, the actual costs amounted to €541.837 million.

For information purposes: In addition to the planned costs for land included in the preceding table in the budget, land purchases and sales amounting to €2.158 million were carried out on behalf of the Federal Government in 2022.

In the fourth quarter, at the supervisory board's recommendation, the shareholders' meeting approved BGE's supplementary budget based on the forecast for 2022. The need for additional funding, forecast at €10 million, came out at €8.440 million in actual costs.

The difference between the costs amounting to €541.837 million and revenues amounting to €540.900 million declared in the profit and loss statement (see annex) results from the balance of advance payments paid and reversed. In addition, these costs include the transfer of invoices to BGE TEC and sales revenue from reclassifications due to the German Accounting Directive Implementation Act (BilRUG) as well as the Asse canteen business in the projects.

Among the reasons for deviations from the plan were the various price increases and supply chain disruptions in business operations in 2022 resulting from the Russo-Ukrainian war and the COVID-19 pandemic. There were persistent shortages of industrial raw materials and construction materials in particular, such as steel and steel alloys.

To ensure that construction/manufacturing can take place on time, BGE is addressing the supply

bottlenecks, for example, by giving pre-approval for materials with long delivery times without waiting for final supervisory approval. In this regard, BGE has requested contractors to procure advance stockpiles of steel, in particular.

This was done in order to bring award procedures to successful conclusions despite the potential price dynamics in material costs. For the award of new contracts, BGE proposed to bidders that they apply a sliding price model in line with federal bidding requirements.

There were also changes in the progress of the projects. This applies in particular to the Konrad 2 surface facilities, the Konrad 1 guide frame replacement, the land procurement for retrieval in the Asse project, the R&D projects for site selection, and the construction measures in dismantling Gorleben and in constructing the new Morsleben administration building.

The following chapters explain the trends in the performance indicators, especially those in the business performance and in the earnings, financial position, and net assets. The 2023 budget forecasts net costs of €605.371 million for 2023. The respective milestones and tasks are presented in updated form in the forecast report.

The company's activities are under the scrutiny and supervision of the shareholder, the supervisory board, the Federal Office for the Safety of Nuclear Waste Management (BASE), and other authorities – and equally importantly are in the focus of the public. BGE therefore provides regular and event-related information about its projects and seeks professional dialogue with experts and the public. Important developments and decisions for the projects are documented and made public as a rule.

### Project costs

in thousands of euros	Actual 2021	Actual 2022	Budget 2022	Deviation 2022	Forecast 2023
Konrad	253,218	289,015	271,826	17,189	298,168
Asse	132,797	127,410	137,611	-10,201	157,977
Morsleben	49,112	61,454	56,165	5,289	62,943
Gorleben	12,647	12,780	14,667	-1,887	17,963
Site selection	20,116	34,290	31,014	3,276	47,797
Product control	15,711	16,888	22,114	-5,226	20,523
<b>Total</b>	<b>483,601</b>	<b>541,837</b>	<b>533,397</b>	<b>8,440</b>	<b>605,371</b>

## Management report for the fiscal year 2022

### Research and development

The main focus of research and development (R&D) activities in 2022 was on carrying out the site selection procedure. The "Site Selection Research Agenda" itemises and schedules the main focuses and activities of research that are important for carrying out the site selection procedure. Research priorities include radio- and chemotoxic behaviour of radioactive waste in the repository,

geoscientific problems, repository planning and preliminary safety investigations, and transfer to and interactivity with sociotechnical issues. The topics and timings of the R&D activities are presented in the Research Roadmap for the Site Selection Procedure, which was updated in June 2022.

In 2022, the following 26 R&D projects were overseen for the site selection procedure:

Project	Purpose	Current term
IGD-TP Climate change in the safety case	Importance of climatic trends in the safety assessment of repositories	2021 – 2027
Thermal integrity of clay and clay stones – THMC simulations	Determining temperature limits specific to host rock	2019 – 2024
THMC implementation and further development of material models for the simulation of THM-coupled processes within the framework of safety-analytical investigations in clay rock and bentonite (Pioneer)	Demonstrating barrier system integrity	2020 – 2025
Research programme of the European Union on the disposal and management of radioactive waste (EURAD)	Stocktaking and improving the international state of the art; collaborating in the work packages GAS (Mechanistic understanding of gas transport in clay materials), HITEC (Influence of temperature on clay-based material behaviour), UMAN (Uncertainty Management multi-actor network), SoK (State of Knowledge), and ICS (Interaction with Civil Society)	2019– 2024
Compilation and evaluation of geophysical methods for surface exploration (ZuBeMERk)	Basis for the surface exploration programme (proposal in Phase I, implementation in Phase II)	2019 – 2025
Compilation and evaluation of geoscientific methods and programmes for surface site exploration (GeoMePS)	Basis for the surface exploration programme (proposal in Phase I, implementation in Phase II)	2019 – 2025

Project	Purpose	Current term
Synthesis platform for safety assessments in the site selection procedure (OpenWorkFlow)	Supporting evidence management in the scope of the preliminary safety assessments	2021 – 2024
Investigation of the effects of mining activities at great depths on the integrity of crystalline rock in the context of the final disposal of high-level radioactive waste (PRECODE)	Basis for repository planning and repository layout & design	2021 – 2024
Atlas of mineralogical and petrophysical properties of German crystalline host rocks (AMPEDEK)	Application of the weighing criterion	2021 – 2023
Influence of thermal maturity on the coupled hydromechanical properties of low-permeability clay stones – field & laboratory scale (MATURITY)	Characterisation and safety analysis of clay rock	2021 – 2025
Effects of cyclical glaciation on salt structures as a potential repository site for high-level radioactive waste	Effects and safety-related climatic long-term trends	2021 – 2023
Neotectonic activity in Central and Southern Germany	Safety-oriented application of the exclusion criteria	2021 – 2023
Michigan International Copper Analogue Project MICA	Long-term integrity of containers	2021 – 2022
Consideration of subglacial erosion processes in the selection of a site for the final disposal of high-level radioactive waste (Search depth)	Effects and safety-related climatic long-term trends	2021 – 2023
Uncertainties and robustness with regard to the safety of a repository for high-level radioactive waste (URS) (six individual projects)	Clarifying the influence of uncertainties in the representative preliminary safety studies	2021 – 2024
Measurements of the microstructure, texture and anisotropy of granites potentially suitable for final disposal, for characterising potential fluid pathways (plutonites) (GAME)	Improving understanding of rock permeability in crystalline host rock through detailed investigations of potential fluid pathways	2022 – 2024



## Management report for the fiscal year 2022

Project	Purpose	Current term
Development of a prediction method for the internal complexity of salt structures	Developing an application-ready method for predicting the internal complexity of salt structures that have been designated subregions in the first step of the site selection procedure. The method will then serve as the evaluation basis for assessing siting regions in the scope of work for § 14 of the site selection procedure.	2022 – 2023
Dynamic modelling of subglacial meltwater erosion in past and future glaciations (QUASI)	Estimating the depth of subglacial meltwater erosion during future glaciations based on numerical simulations	2022 – 2024
Effects of subsrosion on the barrier effect of the ECZ and overburden of a potential site for final disposal of high-level radioactive waste	Assessing the effects of subsrosion on a potential final repository site	2022 – 2023
Theme-related research on the long-term stability of geological conditions (erosion, exhumation, uplift)	Quantifying and predicting erosion processes in Germany	2022 – 2024
Further development of geomechanical-numerical modelling for the characterisation of tectonic stress states for the final disposal of radioactive waste in Germany	Developing and presenting the stress model for final disposal in Germany	2022 – 2026
CatchNet	Characterising hydrological processes in the periglacial landscape area	2022 – 2026
IGD-TP LOMIR	Investigating the release of <sup>14</sup> C and <sup>60</sup> Co during the corrosion of irradiated stainless steel in a highly alkaline, low-oxygen environment	2022 – 2024
IGD-TP Post closure criticality safety	Methodological analysis and stocktaking of the state of the art in science and technology for exclusion of criticality in the post-closure phase of a repository	2022 – 2027

Project	Purpose	Current term
Cooperation with Rock Laboratory Mont Terri (Switzerland)	The project is divided into phases, which run from 1 July of one year to 30 June of the following year; 2022 phases No. 27 and 28; 2022 collaboration in ten experiments; Investigations are being carried out in particular on properties of the uplift-related fault zone, diffusion properties, thermal-hydraulic-mechanical coupling model of in-situ experiments, geomechanical and geochemical characterisation of the opalinus clay and its microbiological properties.	2020 – 2028
Cooperation with Rock Laboratory Grimsel (Switzerland) in various experimental series	CFM – Migration of Radionuclides	2021 – 2024
	HotBENT – Effects of High Temperatures on Bentonite Barriers	2021 – 2024
	Benterest – Enhancement of Bentonite Models for High Temperature Ranges up to 200 °C – Further development of numerical tools and coupled thermal-hydraulic-mechanical (THM) material models for bentonite – Project started in 11/2022; Activities in 2022 limited to the kick-off meeting.	2022 – 2027
In the Asse project, the subproject "Development of an optimised, combined and high-resolution seismic imaging method for the site exploration of radioactive repositories, 3D Seismics (DOSIS)" started with the aim of achieving higher-detail and higher-precision assessments of seismic surface measurements in exploration.	Also, work started in 2022 on compiling the R&D topics and problems relevant to the company's operations into an overarching research programme for BGE. This research programme is planned to be published in 2023.	
In the Konrad, Morsleben, Asse, and Site Selection projects, the subproject "Thermodynamic Reference Database (THEREDA)" was continued in 2022 for the creation of an internally consistent database for geochemical model calculations.	The net costs for R&D activities in these projects in 2022 were €10.149 million (previous year €5.472 million). These are included in the costs of the projects.	

## Management report for the fiscal year 2022

### Economic report

#### Business development

The articles of association, the transfer of exercise of duties, the budget, and the resolutions of the supervisory board and the shareholders' meeting form the basis for the business management of BGE. The details of economic management are set out in the "financial statute on economic management and financial and asset management" (updated 2021).

#### General

As part of the company's development, interface tests for introducing SAP S/4HANA into BGE's existing IT systems were successfully completed, meaning the technical prerequisites for the system introduction are largely in place. Despite delays in subprojects, due to contractor personnel changes, the planned go-live date for SAP S/4HANA in October 2023 is still achievable thanks to a prioritised recovery plan.

A system for increasing the cybersecurity was procured and introduced in 2022. A new filing structure with automated assignment of permissions was established in the document management system, is being continuously developed and has been connected to the new SAP S/4HANA environment. Furthermore, planning was completed for the conversion of the data centres in Peine, including the emergency power system, and the first construction measures began.

More digitalisation came with the implementation of Building Information Modelling (BIM) for BGE's construction projects. The first use cases with the

BIM method were in the subproject Asse Waste Treatment Plant and Interim Storage Facility.

Another component of digitalisation are the Mining 4.0 development projects. Wi-Fi was added to workshops and central areas of maintenance as the first step in equipping the mines with Wi-Fi underground.

Furthermore, structural measures were performed in the newly leased buildings in Peine – Woltorfer Straße 76 A & C and Celler Straße 25 – and the relocation and occupancy plans were developed for all buildings.

From November 2022 onwards, one focus of the public relations work was publicly announcing the postponement of the timeframe for finalising the siting decision on the repository for high-level radioactive waste. In relation to this topic, background talks were organised with the press and the Site Selection Division was supported in preparing and communicating a time schedule. The central event for early public involvement in the waste treatment plant and interim storage facility for wastes to be recovered from the Asse II mine was also held in November 2022. In October, BGE presented itself for the first time at the Frankfurter Buchmesse – as the publisher of the magazine "Einblicke". Five issues were published in 2022. The magazine "Einblicke" informs about diverse topics, including the search for a repository. It highlights multiple, differing perspectives and thus contributes to the social and political debate on the final disposal of radioactive waste. Internally, an employee app independent of intranet access was introduced for providing all employees with company news.

All real estate owners were legally required to submit tax declarations for their real estate, as of 1 January 2022, to their respective tax office

by the end of January 2023, via the electronic ELSTER interface. For this purpose, BGE calculated the values of approximately 300 parcels of land in terms of property area, land value, and usable floor space of the buildings. This includes all real estate owned by the Federal Government and BGE as well as Federal Government buildings located on third-party land. The declarations were submitted to the tax offices in due time.

Within the framework of the BASE review in accordance with Section 58 (4) of the Atomic Energy Act, the documents for the 14 review complexes submitted at the end of 2021 were compiled in 2022 and handed over to the BASE on time on 30 April 2022. The additional documents requested were sent in full and on time. Site audits took place as planned in November 2022. It was verbally declared that the decision from the BASE would come in the first or second quarter of 2023.

#### Construction of the Konrad repository

The Konrad mine is being converted into a repository for low- and intermediate-level radioactive waste. Once complete, up to 303,000 cubic metres of low- and intermediate-level radioactive waste will be emplaced in it. It is the first repository in Germany to be licensed under nuclear law. The nuclear licence for the construction and operation of the repository was given in 2002 in the form of the plan-approval decision (Planfeststellungsbeschluss, PFB).

Preparation of the Konrad repository in 2022 was characterised by extensive construction and planning measures.

#### Shaft mine Konrad 1

The guard building was built and construction of the heating centre commenced at the shaft

mine Konrad 1. Shell construction was completed for both the workshop and heating centre, and interior work started. The hoisting machine for the shaft hoisting system was completed and installed in the hoist building. The shaft chair was installed on the 5th level in the shaft. A shaft chair is a guiding device for the shaft hoisting system at the connection points between pit and shaft. Furthermore, some of the renovation work on the Konrad 1 shaft hoisting system, including the shaft hall, will be postponed until 2023 due to permits for the shaft chairs being issued at a later date.

#### Shaft mine Konrad 2

The mine water transfer station and the building for the depot were built at the shaft mine Konrad 2. Construction of the fan building was contracted out. Prolonging of the time to construct the depot led to increased costs. Postponements of pit water disposal services from 2021 to 2022 were due to delays in contract awarding. Further cost increases were incurred for the postponed structural design of the shaft hoisting system, as it was necessary to recalculate the earthquake load case for the shaft cellar. 2022 had lower costs than forecast for planning and construction in the shaft cellar area, since soil improvement measures first had to be performed here.

The contract for construction of the reloading hall was awarded in 2022. This is the central building for surface activities at the Konrad 2 shaft mine and will be built in three construction stages. This is where the waste packages will be delivered and prepared for transporting underground during the future emplacement operations. In the shaft, installation of the -16 m platform and construction of the small cable-driving system were completed. This clears the way for construction of the shaft cellar and winding tower. After the small cable-driving system was commissioned, the temporary headgear was completely dismantled.

## Management report for the fiscal year 2022

### Pit

Underground, more sophisticated methods were used to greatly increase the speed of installation of the inner linings (inner support lining of two linings in total). In the bunker, between the second and third level, installation of the inner lining was completed. Renovation of the access way to the Konrad 2 shaft on the 3rd level was completed. Given the calculated rock loads in the pit cavities, some of these have to be constructed with a single-bar reinforced support lining instead of with a steel fibre reinforced inner lining.

Furthermore, additional leveling layers had to be installed, resulting in additional costs. On the 2nd level, the foundations for the technical installations of the backfill preparation system were put in place. The exploration drillings began for later excavation of the emplacement field 5/2.

For the mobile emplacement technology, the fire test of the transport truck battery was successful. In the fourth quarter, the revision of the design review document was submitted to the BASE in the scope of the preliminary examination required by nuclear law. The site acceptance of the two battery-powered shunting vehicles took place in the fourth quarter. The originally planned delivery and installation of the digital underground mine radio system could not take place in 2022 due to having to go through a complex Europe-wide tendering procedure and extensive nuclear licensing requirements.

### Decommissioning of the Asse II mine

Between 1967 and 1978, around 47,000 cubic metres of low- and intermediate-level radioactive

waste were emplaced in the mine. Retrieval has been a legal mandate since 2013 and is scheduled to begin in 2033.

After coordination with the Lower Saxony Ministry of Food, Agriculture and Consumer Protection (NML), a decision on the renewed update of the Saxony Spatial Planning Programme (LROP) is to be obtained in favour of the spatially significant Asse project. For this, a spatial planning notification was prepared and submitted to the NML in March 2022. Thus the introduction of the Regional Planning Procedure (ROV) has begun. Management of the ROV for updating the LROP in favour of the Asse project was passed on from the NML to the Braunschweig Office for Regional Development. An application conference on the ROV was held in July 2022.

The land negotiations with private owners of properties in the area of the planned shaft Asse 5 were concluded and the purchase/barter agreements were notarised. The purchase of other plots has been delayed due to difficult negotiations with the owners. Accordingly, these costs were not as high as forecast. The plots are required for the waste treatment plant with interim storage. The company concludes these purchases in the name and on the account of the Federal Republic of Germany.

The subsoil investigations of the areas on which the planned waste treatment plant and interim storage facility are to be constructed were concluded. The subsoil investigated so far is in principle suitable for constructing the waste treatment plant with interim storage. Design and licensing planning began for the waste treatment plant with interim storage. This was contracted out at higher costs than forecast,

where services projected for 2022 will only be invoiced in 2023.

The records from the 3D seismic surveys performed in 2020 for creating a 3D geological model of the overburden were further analysed. Initial results are available. The model is intended to deliver a reliable basis for planning a safe retrieval mine.

Also concluded in 2022 was the subsoil investigation for the planned drilling site for the exploratory borehole Remlingen 18. This borehole is to be the basis for deciding upon and designing the site of the new mineshaft Asse 5, and to deliver insights for the geomechanical investigation of suitable underground mine cavities. The starting point for the drilling was specified on the basis of the results from the 3D seismic surveys. Because these results came late, due to a necessary change of contractor, the award procedure for the drilling was also postponed. The service and associated costs planned for 2022 are thus shifted into the next year.

For the retrieval of radioactive waste from the 750 m level – where most of the radioactive waste is located – the concept planning for the retrieval procedure and for the development of the retrieval technology was contracted out. This means that all planning of the respective retrieval procedures and recovery technology for the three disposal levels has been contracted out. The retrieval technology includes tools for the direct uncovering, loosening, and loading of salt grit or packages or parts of packages. Technical solutions were developed for avoiding or limiting dust formation and damage to packages, for securing the working areas, and for supplying and storing the actual tools.

The concept planning for the equipment for characterising the retrieved radioactive waste was concluded at the beginning of 2022. The retrieved waste is to be characterised for further handling and later final disposal in terms of radiological and material characterisation.

Implementation of the conditions imposed by the NML began for the exploration of emplacement chamber 8a on the 511 m level.

Underground and surface assessments for a cavern for stockpiling counter-flooding solution in the form of magnesium chloride (MgCl<sub>2</sub>) solutions, to be kept ready for emergencies, were completed. Negotiations were started with the contractor regarding supply in the case of emergency, and supply by rail was tested. The mining technology of the last of four cavern sections on the 825 m level for the temporary storage of influent solution was completed with the construction of the sealing structure in November 2022.

The following trades experienced delays: The main mine ventilator could only be installed and accepted in 2022, due to a long planning phase. Another deviation results from the as yet unrealised land acquisitions for the compensation and replacement measures, which are dependent on the planning and implementation status of the retrieval. The planned backfilling measures and their costs could not be realised to the planned extent. This was due to changes in planning, exceptional operations due to COVID-19, and the fact that revision of the licensing documents had to take place with limited resources. For a new office building, the current recommendation for the foundation needs a modified construction design. This means the service performance and costs shift into 2023.

## Management report for the fiscal year 2022

### Decommissioning of the Morsleben radioactive waste repository and closure of the Gorleben mine

#### Decommissioning of the Morsleben repository for radioactive waste

Between 1971 and 1991 and from 1994 to 1998, a total of around 37,000 cubic metres of low- and intermediate-level radioactive waste was disposed of permanently in the Morsleben repository. Radioactive waste was also stored there temporarily. The tasks in connection with the Morsleben repository for radioactive waste include keeping the repository ready for decommissioning and approving the plans for its decommissioning.

The application documents in the plan-approval procedure are expected to be completed and submitted in 2026. The plan-approval decision for decommissioning is expected to come in 2028. Significant progress was made in 2022 for the decommissioning of the Morsleben repository. As part of the plan-approval procedure for decommissioning, the characteristics of the geotechnical barriers have to be evaluated. In this context, laboratory tests and plans for demonstration structures were made. Planning commenced for the demonstration structure shotcrete/bitumen in anhydrite. The semi-mobile building material facility was assembled for the demonstration structure in the main anhydrite, which is to be made with poured magnesia clay. Consultation services for building materials testing could not be realised to the planned extent due to supply chain disruptions. Approval documents were created and discussed with the Ministry for Science, Energy, Climate Protection and Environment of the Federal State of Saxony-Anhalt. The document "Regulatory Framework" was submitted in final form at the end of 2022.

The shell of the new administrative building was completed. Among the things commenced in November were dry construction and installation of the glass elements, drainage technology, and fire-resistant cladding. The increases in price reached as much as 43%. In the area of the former binder handling plant, the control area was decommissioned at the beginning of the year.

Cost increases resulted from the postponement of services for various components and building parts from 2021 to 2022, as they could not be implemented to the planned extent (mainly due to supply chain disruptions or delayed award procedures). In addition, higher costs than planned were incurred for the construction of the new administration building, since the building had to be made larger for a new operations management department in preparation for decommissioning, and higher raw material costs were incurred. This was offset by the postponement of services and resulting costs to 2023, among other things for the procurement of vehicles, due to supply chain disruptions and the renewal of the Marie shaft hoisting system, for which further coordination with the state office for monument protection is needed.

#### Closure of the Gorleben mine

The Sub-Areas Interim Report for the site selection procedure for a repository for highly radioactive waste, published on 28 September 2020, does not include the Gorleben-Rambow salt structure as a designated sub-area. The Gorleben-Rambow salt structure was thus excluded from the further site selection procedure. The Gorleben mine is therefore no longer to be kept open pursuant to Section 36 (2) sentence 3 of the Site Selection Act (StandAG). After approval by the supervisory board, in 2022, the shareholders' meeting ordered BGE to close the Gorleben mine.

For Phase 1 of the closure – there are three phases altogether – the documents for "Moving the salt stockpile underground, backfilling residual voids of the mine workings" were prepared and the services were put out to tender. The tender document for dismantling the loading facility located on the minesite was prepared and published. The originally planned renovation of the salt stockpile is no longer necessary, as the salt is to be used to backfill the mine workings.

The general schedule and work breakdown structure for the closure were prepared. Closure is expected to take until around 2031.

#### Site selection procedure

The site selection procedure consists of three phases. Phase I, the first phase which has two steps, concludes with determining the siting regions for surface exploration. Phase II is the surface exploration and subsequent suggestion for underground exploration of sites. Phase III is the stage when the underground explorations and site comparison and suggestion will be concluded.

The planning for implementing the milestone "Proposal for siting regions and surface exploration programmes" started in the fourth quarter of 2020. The ongoing methodological work for carrying out the representative preliminary safety assessment (PSA), reapplying the geoscientific weighing criteria (geoWK), potentially applying the scientific planning weighing criteria (planWK), and implementing the site-specific exploration programmes were further elaborated.

The start of Step 2 of Phase I also marked the beginning of the development of a schedule, which

timetables the key milestones up to the proposal for the siting regions, including site-specific surface exploration programmes. During the initial considerations of the implementation concept for the PSA, it quickly became clear that the time required to determine siting regions would largely depend on the nature of the methods to be developed.

The time and procedural schedule for determining siting regions for surface exploration was developed based on the knowledge gained from Step 2 of Phase I and the development of methods for carrying out the PSA, and was published on 16 December 2022.

In the course of 2022, a significant amount of work was done on establishing an overall method for determining siting regions for surface exploration in accordance with § 14 StandAG. Extensive method development work went into the individual work steps (PSA, geoWK, planWK, and site-specific exploration programmes). For the PSA, for example, comprehensive status reports on this method development were published in March 2022, including case examples from four regions.

BGE created the document "Zeitliche Betrachtung des Standortauswahlverfahrens" (an examination of the time expectations for the site selection procedure) as a discussion paper for the BMUV. The BASE received this document on 17 November 2022 from the BMUV with attachments for review. This document outlines initial time estimates for the site selection procedure in various scenarios.

Cost increases over budget were recorded for the R&D projects, in particular, resulting from increased tendering responses and current advanced processing statuses.

## Management report for the fiscal year 2022

### Product control measures

Within the scope of product control, it is being checked whether the waste has been properly processed and packaged in accordance with the applicable conditions for final disposal. Implementation of the water law compliant procedure for the plan-approval decision PFB Konrad is being drafted and implemented.

For the qualification of waste packages, an annual plan was drawn up in coordination with the applicants. For the year 2022, there were originally planned to be 652 applications; ultimately 412 applications were actually submitted. This equates to a -37% plan/actual variance on the side of the applicants. The greatest plan/actual variance of -62% was seen in the highest-turnover application category "waste package documentation", followed by -44% in the application category "process qualification". In contrast, the number of applications actually submitted for the "change request" category was significantly higher than planned.

Experts were brought in for technical assessments in the scope of product control of radioactive wastes and container type testing. These experts were commissioned in 2022 for a total of 423 test procedures and presented 428 test results and appraisals. In the same period, 131 change requests, 160 documents, and 47 procedure qualifications were approved by Product Control in the scope of radiological examination. In 2022, the number of decisions issued in the scope of the container type testing was 22.

Thus, in total, Product Control issued a total of 360 decisions in 2022.

In the scope of the "Nuclear Waste Logistics" (NWL) project for introducing a digital order management system, work was done in 2022 in the third and final project step "Project Implementation" of four work packages, which were driven forward in comprehensive internal and external workshops. On 9 December 2022, the current work status and the advanced features of the NWL platform were presented in an NWL Community Update.

The introduction of a new cost-covering and fair invoicing system for product control has been delayed due to the need for coordination with the applicant.

In the scope of standardising the digitalisation, the successive completeness checking of the inventory documentation as well as its final filing in combination with complete digitalisation were completed in 2022.

The costs of the expert inspections were lower than budgeted due to the significant shortfall of applications received in 2022 and to the absence of external support for container type testing. For the NWL project, changes in external conditions led to delays in the programming work and associated costs.

Technical notes explaining and specifying the requirements arising from the final storage conditions and the product control reports were

prepared and issued by BGE. These documents serve, among other things, to illustrate appropriate procedures for carrying out the product control process. Regular technical meetings and special technical and status discussions were held in 2022 to targetedly coordinate the work relating to product control and type testing. Energy supply companies, container manufacturers, experts, and supervisory authorities participated in these to discuss current issues, to identify and schedule time-critical tasks, and to monitor their execution.

To meet the requirements resulting from the qualified permission under water law of appendix 4 of the plan-approval decision PFB Konrad, numerous coordination discussions on the material description of radioactive waste continued with those surrendering the waste, with BGZ Gesellschaft für Zwischenlagerung bmH (BGZ), with the Lower Saxon Department for Water, Coastal and Nature Conservation (NLWKN), with the BMUV, and with the Lower Saxony Ministry for the Environment, Energy and Climate Protection (NMU). These discussions focused, among other things, on the evaluation of the substance groups of polychlorinated biphenyls and polyaromatic hydrocarbons.

With respect to stocktaking, in addition to the annual stock check, research was done into the state of knowledge about future waste stocks and corresponding discussions were held with the Gesellschaft für Nuklear-Service mbH, with the BGZ, with those surrendering the waste, and with the BMUV. Concepts were also developed for establishing a national waste database.

### Earnings, financial position, and net assets

#### Earnings

The company's revenues increased by €64.897 million compared to the previous year (€476.003 million) to €540.900 million. Of this, €540.503 million (previous year €475.604 million) are attributable to the shareholder. Revenues additionally include the invoicing of services to the subsidiary BGE TEC in the amount of €324,000 (previous year €333,000) as part of the agency and service agreement, as well as revenue from the canteen business (€73,000; previous year €66,000).

Other operating income (€11.448 million; previous year €12.069 million) mainly includes income for provisions no longer required for expected service settlements in 2021 (€10.932 million; previous year €4.301 million). Other operating income of total €516,000 (previous year €949,000) includes offset remuneration in kind, recourse and compensation claims against contractors, the reimbursement of the trade union IG BCE, credit notes from contractors, and a reimbursement of costs for a research contract.

The costs of operational management in the amount of €552.348 million (previous year €488.157 million) break down as follows:

## Management report for the fiscal year 2022

### Costs of operational management

in thousands of euros	2022	2021
Material expenses	314,816	260,274
Cost of raw materials, consumables, and supplies	38,206	30,399
Cost of purchased services	276,610	229,875
Personnel costs	210,034	197,744
Depreciations	68	28
Other operating expenses	26,878	27,670
Interest and similar expenses	480	2,171
Taxes on income and earnings	-3	216
Other taxes	75	54
<b>Total</b>	<b>552,348</b>	<b>488,157</b>

The cost of purchased services mainly includes provisioning for outstanding service invoices from 2022 relating to work and other service contracts, temporary employment, guard services, maintenance measures, and energy costs.

Personnel costs include all wages and salaries, social security contributions, and costs for pension schemes.

The €26.878 million (previous year €27.670 million) in other operating expenses mainly comprise general administrative expenses, including rental costs, expert opinion and external consulting services, incidental personnel expenses, and fees relating to nuclear supervision.

#### Assets and financial situation

The total assets increased by €3.876 million compared to the previous year and now amount to €157.900 million (previous year €154.024 million). This is mainly attributable to the increase in receivables from the shareholder for provisions that have yet to become effective as well as an increase in the advance payments made to contractors.

Fixed assets amounting to €4.667 million (previous year: €4.735 million) include €3.977 million (previous year: €4.045 million) in tangible assets and €690,000 (previous year: €690,000) in financial assets.

The reported property, plant, and equipment (acquisition of property in Peine) was recognised at acquisition cost and offset against the loan granted to PALEA Grundstücks-Verwaltungsgesellschaft mbH & Co. KG (PALEA) in the same amount. Other tangible fixed assets in connection with the Peine property were recognised at acquisition cost and offset against an investment grant in the same amount (net method), so that the respective asset is recognised with a book value of zero. Accordingly, there is no depreciation for this.

Current assets include receivables from the shareholder amounting to €124.698 million (previous year €122.535 million), advance payments made to contractors (€15.171 million; previous year €13.837 million), other assets (€12.738 million; previous year €11.762 million), and credit balances with banks.

On the liabilities side, current assets are mainly offset by debt capital in the form of project-related trade payables and provisions.

The provisions increased to €84.271 million (previous year €77.261 million) and result from the following: Pension provisions and similar obligations (€16.836 million; previous year €16.906 million), outstanding invoices (€43.249 million; previous year €36.108 million), procedural costs for decommissioning the Morsleben repository for radioactive waste (€6.413 million; previous year €6.934 million) and for decommissioning the

## Management report for the fiscal year 2022

Asse II mine (€3.418 million; previous year €3.600 million), VAT risks (€5.802 million; previous year €5.983 million), personnel obligations (€8.473 million; previous year €7.662 million), and financial statement costs (€80,000; previous year €68,000).

Within liabilities (€68.825 million; previous year €71.851 million), trade payables predominate at €46.122 million (previous year €48.879 million). Other liabilities (€18.027 million; previous year €17.901 million) essentially comprise value-added tax (VAT) and wage tax payable. Another €4.676 million (previous year €5.071 million) was recognised for liabilities to the shareholder and the subsidiary.

Equity decreased in 2022 to €4.804 million due to the distribution of €108,000 in profits from 2020. The equity ratio is 3.0% (previous year 3.2%). The financial situation is secured at all times through financing from federal budget funds in the scope of the commissioning by the shareholder. For this reason, separate lines of credit from banks are not required and are therefore not held.

### Personnel and social report

#### Personnel development

As of 31 December 2022, BGE had a total of 2,338 employees working at eight locations, divided into 2,161 company employees (annual average 2,038), 74 BfS-appointed civil servants and public sector employees, and 103 temporary workers.

In 2022, in response to 309 job advertisements, 17 temporary workers were taken on, most in

fixed-term contracts; seven formerly temporary employees were made permanent. As of 31 December 2022, there were a total of 179 fixed-term contracts.

As of the balance sheet date, seven of the sixteen supervisory board mandates are held by women (44%). Since the departure of the commercial managing director on 30 July 2021, the proportion of women on the executive board has been 0%. In its meeting on 29 November 2022, the supervisory board decided that it would fill a vacant seat on the management board with a woman in accordance with the legal stipulations.

According to the Equal Opportunities Plan, a women's quota of 30% in the management levels F1–F3 is to be achieved by the end of 2023. At the end of 2022, this quota was 23% (appointees accounted for).

After the go-live of SAP Human Capital Management (HCM) with Personnel Time Management (PT) at the administrative locations Salzgitter, Peine, and Berlin on 1 January 2022, further follow-up work was done at the beginning of 2022. One focus in 2022 was introducing SAP HCM with PT at the locations Gorleben, Morsleben, Konrad, und Asse.

Trial integration was done at the locations Gorleben and Konrad in the second quarter and at Asse and Morsleben in the third quarter. Corresponding works agreements were concluded. In the fourth quarter, further work was done for the go-live at these locations. It is planned that the connection of all operating locations, including the necessary establishment of rules, will be concluded in 2023.

Thus, the employees now have a platform at their disposal which, among other things, enables the electronic recording of working hours and holiday applications, provides digital time booking overviews, and supports various change notifications on the system side.

The introduction of digital personnel files is being prepared in 2023. Furthermore, it is planned to centralise and digitalise travel management. For the use of SAP Applicant Management, the necessary general works agreement is expected to be concluded in 2023.

In the Human Resources department, the personnel officer model was introduced. Six personnel officers are assigned to the BGE departments to serve as the points of contact for managers, works council members, and employees for all personnel-related matters.

Besides the regulations mentioned above, various additional general and other works agreements were revised, redesigned and negotiated, and the company regulations manual was transferred to Process Management.

An Inclusion Officer has been appointed since 2022. She supports the company in the professional integration of people with disabilities.

Furthermore, there are contacts for the topic of equality at five BGE locations.

Recommendations made by Internal Auditing regarding personnel processes, procedures, controls, and interfaces have been successively addressed since the third quarter in a project structure with internal and external support.

### Training and continuing education

The topics of training and the vocational training market were the focus of several activities. BGE's Future Day was hosted in April in digital form with more than 60 participants. BGE also broke new ground with the Federal Employment Agency's recently introduced "speed dating" format for filling vocational training places. Additionally, the company participated in the "vocatium" training fair. All eleven vocational training places and one of two study places for the Radiation Protection dual study program were filled in 2020.

In 2022, as part of the internal measures for continuing education, 4,174 training courses were organised for the company, serving essentially to maintain or develop/expand the expertise and qualifications of the employees. As of 31 December 2022, there were 47 trainees employed at four locations in training periods of up to three and a half years. 14 trainees passed their final exams, eleven of whom were taken on as temporary employees and three as permanent employees.

The Trainee Programme, conducted for the first time, was successfully concluded in December.

### Occupational health and safety

Occupational safety has the highest priority in the planning and execution of all work.

The total number of accidents in the company comprises ten reportable accidents at BGE (previous year four) and 14 accidents involving contractors (previous year five).

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Target agreements on occupational health and safety were concluded with the contractors employed at the mines as an immediate measure for improvement.

Furthermore, the cultural development programme "Sicher und gesund? Was sonst!" ("Safe and healthy? What else!") was promoted, coordinated, and closely supported during its implementation by Occupational Health and Safety, with workshops for OHS officers, managing directors, division managers, and executives. The range of occupational psychology services was also expanded to include additional, low-threshold external counselling options.

Events that took place at the BGE locations include participation in the trainee competition "Sicherheit von Anfang an" ("Safety from the Start") of the Social Accident Insurance Institution for the Raw Materials and Chemical Industry (BG RCI), driver safety training, and organisation and hosting of Health Days.

The planning, organization, coordination, control, and implementation of the online employee survey on the risk assessment of mental stress in the workplace were implemented as a priority.

The established measures for workplace health promotion (for example fit@work) continued in the form of weekly changing on-demand offers for employees. Sustainably oriented, holistic preventive relations and behavioural concepts complemented the measures to improve the individual physical and mental performance and wellbeing of employees.

These measures are continuing in 2023.

### COVID-19

Due to the COVID-19 pandemic, the joint crisis team of BGE and BGE TEC defined a set of measures (general risk-mitigating emergency plan, concepts for protective measures, Corona framework plan etc.), which were continually updated in 2022 in compliance with laws and other standards (federal laws and ordinances, state ordinances, specifications from accident insurance institutions, and industry-specific recommendations, etc.) as well as in response to results from the introduced monitoring protocol and the evolution of the pandemic in the company.

In addition to company doctor visits and occupational health consultations, the Occupational Health Care Services carried out 417 SARS-CoV-2 and 483 influenza vaccinations.

The disruptions caused by the COVID-19 pandemic (including travel restrictions, resource scarcity, supply chain issues, etc.) continued to affect all projects to varying degrees in 2022.

Operations at all sites require the presence of a large number of employees and, by their very nature, are often associated with spatial confinement. In order to minimise the likelihood of chains of infection developing in the company, the package of safety measures taken was established to protect each and every individual, with a view to ensuring the best possible performance of tasks. The resulting conflict of goals regarding productivity and economic efficiency was handled in the best possible way. Thus, in 2022 again, it was possible to prevent sites from having to partially or completely close their operations. On 6 February 2023, business returned to regular operations. Monitoring will continue, to watch for any further incidence of infection and respond appropriately if necessary.

## Forecast, opportunity, and risk report

### Opportunity and risk report

Internal reporting and comprehensive controlling ensure that the management is promptly informed of potential opportunities and risks and can swiftly initiate appropriate measures and countermeasures.

There are no existential financial risks, since the costs of economic management are reimbursed by the BMUV upon notification of resource requirements through the call-for-funds procedure. The BMUV reimburses the costs incurred at cost price.

With uniform corporate risk management, the relevant risks of all corporate divisions are identified, analysed and evaluated, and necessary measures for risk management are determined and their implementation monitored. In the quarterly cycle, reports are issued on the priority risk situation of the respective departments. In addition to discussing the overall risk situation and the priority project risks, the respective risk committee meetings in 2022 also focused on organisational, compliance, finance, and procurement risks. Introduction and customisation of a new software application, which helps to link the identified risks to the data in the schedules for the repository projects, began in the fourth quarter of 2022 as part of a pilot project and will continue step by step in 2023.

In order to develop the central internal control system (ICS) further, the introduction of key controls into the business units was continued. The assessment of controls has been carried out for 15 out of 20 business units. For 13 of these business units, an initial control inspection already

took place in 2022. In 2023, another five technical divisions will be added to the central ICS and the control inspections will be done for the first time for all units. After commencing the setup of a tax compliance management system in 2021, with a tax guideline containing the essential parts, the processing of payroll tax and social security contributions continued and will be completed in 2023. The key controls defined there and those of other organisational units were recorded centrally in risk control matrices with a uniform system. The first inspection of these controls took place in 2022. This will continue at yearly intervals. The activities performed are documented in annual reports.

In 2022, Compliance Management started with the revision of the compliance guideline and creation of a code of conduct. These will come into force in 2023.

### Forecast report

Regarding the forecast costs, please refer to the table in the "Control system" section. The milestones defined in the 2023 budget have since been updated. Changes in plans will be reported in the first quarterly report.

The ongoing war in Ukraine has no direct impact on the company. Also, BGE does not have any supply relationships with Russia, so there are still no direct repercussions to be expected from the related EU sanctions. However, the already fragile supply chains are becoming even more strained and thus having an impact on the projects. Further price increases are to be expected especially due



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to the inflation situation. At present, it can be assumed that the funds made available by the BMUV from the budget for 2023 are sufficient.

### General

Planning for the potential extension of the main administration building in Peine and the measures for the company-wide conversion to e-mobility are being continued in 2023.

The information events, site selection, development of social media channels, and press monitoring including preparation of the daily press review are all continuing. Based on the results of the survey on the external perception of BGE, the communication services are being expanded and/or adapted. For internal communication, the events relating to corporate culture are being intensified.

Further development of the integrated document management system is continuing.

In 2023, implementation of the IT security concept, expansion of company-wide Wi-Fi availability, and renewal of storage solutions are all continuing. The go-live for the new SAP version SAP S/4HANA, for improving the relevant business processes, and a modern user-oriented data processing solution is planned for October 2023. This is being supervised by the auditor.

Furthermore, the digitisation projects underground are to be continued. This includes, among other things, the Wi-Fi infrastructure, the Industry 4.0 environment, and the use of autonomous machinery.

### Construction of the Konrad repository

Focuses of work in the Konrad project for 2023 are demolition of the old shaft cellar, building measures for constructing the reloading hall at Konrad 2, and replacement of the guide frame at Konrad 1. The installation of the inner linings is to continue underground.

At the Konrad 1 mine, the building measures for the guard building, heating centre, and workshop building with filling station are expected to be completed and, with that, the construction of all surface buildings at the Konrad 1 mine. The shaft qualification is expected to be essentially concluded and the conveyor belt und loading facility contracted out.

For the winding tower (Konrad 2), fabrication of the steel construction is being concluded.

### Decommissioning of the Asse II mine

The filling of the ridge gaps and remaining cavities in the unused mine workings is still planned for stabilising the mine workings. At the end of 2022, the daily amount of solution ingress collected at main collection point 3 on the 658 m level decreased from approximately 12.5 m<sup>3</sup> to 11.5 m<sup>3</sup> and, at the same time, the amount collected on the 725 m level increased accordingly. Upon investigations of the main collection point at the beginning of 2023, it turned out that the natural drainage of the sealing membrane into the catchment basin no longer happens. Thus, a passively functioning collection point has once again become a

system to be actively controlled. BGE is working on solutions for restoring a passive, zero-maintenance system. Due to the changes in the main collection point, the risk of a beyond-design ingress of solution and cancellation of the retrieval has increased. The reason for this is the reduced robustness of the system against rock movements. As part of the renovation of the main solution collection point, the approval documents are to be created in 2023 and submitted in 2024. Additionally, a search is to be made for additional capacities for disposal of the influent solution. The decision of BGE for the preferred cavern location for later storage of the MgCl<sub>2</sub> solution is expected to be made in 2023.

The negotiations with Waste Treatment for the procurement of additional land for the waste treatment plant with interim storage are continuing in 2023. Furthermore, the concept planning is continuing for retrieval of the radioactive waste from the 511 m, 725 m, and 750 m levels and for the development of the retrieval methods for all three levels.

The planning of the new mine, including the new shaft Asse 5 and corresponding surface equipment and infrastructure, shall be continued. Also, the sinking of the exploratory borehole Remlingen 18 and concept planning for the shaft sinking, shaft lining, shaft hoisting system with interim storage, and surface facilities are commencing. The planning of the used air structure for the retrieval mine shall be continued. It is furthermore planned, among other things, to commence with construction of the radiation protection laboratory and car park. Planning of the substation is starting.

### Decommissioning of the Morsleben repository for radioactive waste

For planning the decommissioning measures, further procedural documents are being prepared and investigations into the shaft seals, drift seals, and backfill measures are continuing. Geotechnical and geophysical measurements are accompanying these measures. In addition, investigations into backfill and closure materials are planned. For the plan-approval procedure for decommissioning, it is planned to create geological cross-sections. Furthermore, the pre-proof version of the report on the approach methodology will be created and submitted. This evaluates the radiological effects and protection goals for operational safety during the decommissioning phase.

Three demonstration structures are in focus in 2023. The first is planned with magnesium oxide (MgO) mass concrete in the main anhydrite. Construction of another in the rock salt is to be contracted out. The third is an external demonstration structure with MgO shotcrete/bitumen in the main anhydrite. The investigations at the demonstration structures and sealing of safety-relevant boreholes are to begin. Furthermore, the dismantling of the surface control area and relocation of the control area transition to underground shall be continued. Underground, among other things, further exploratory measures are planned for the purpose of preparing to secure Storage H.

The renewal of the fire alarm systems underground and visualisation in the central control room are also continuing, as is the renovation of the roads, paths, and cable shafts

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in Bartensleben. Construction of the new office and administrative building is being completed. The award procedure for renewing the Marie shaft hoisting system is to begin.

### Gorleben

Maintenance measures and replacements are being carried out to continue safe operation and enable safe decommissioning. This includes, for example, the roof repairs of the platform winch hall in Shaft 2 and upper rope replacement on the main cable-driving system.

The planning and execution tasks for bringing the salt dump back underground and backfilling the mine workings are to be contracted out. The documents for tendering the renaturation of the surface facilities and removing the remaining salt of the salt dump are being drafted.

In 2023, the machinery in the mine workings is also being dismantled, as is the loading facility on the minesite.

### Site selection procedure

In focus of the site selection project for 2023 is the work for determining the siting regions for surface exploration. This includes the geoscientific work in the scope of the representative preliminary safety assessments, the development of the methods for renewed application of the geoscientific weighing criteria, the method development for applying the scientific planning weighing criteria, and the preparatory work for creating exploration programmes for surface exploration. The methods developed for the preliminary safety assessments

shall be used as the basis for delimiting the subareas previously identified and for deriving further work in relation to exploration and research & development requirements.

Another point of focus is the research projects. These include, among other things, the projects PRECODE, SpannEnD 2.0, and cooperation with the Rock Laboratory Grimsel (see Research and Development).

The repository planning and computational design of the surface, nuclear, and conventional facility components required for constructing a repository for high-level radioactive waste in accordance with § 9a (3) sentence 1 of the Atomic Energy Act (AtG) shall commence. The repository container development and corresponding conditioning concepts are being continued.

### Product control measures

With respect to the safety of a repository in the operational and post-operational phase, the radioactive wastes to be finally disposed of must meet specific requirements for the conditioned waste products, the waste packaging, and the waste container.

The focuses of 2023 are still the qualification and control of the conditioning processes in which flow charts, waste packages, and container design type testing are to be checked and released. The largest projected cost is for the third-party services of the independent expert organisations, which are included for support in the areas of type testing and product control of radioactive wastes. The applicant plans to submit 425 applications in relation to this in 2023, while the Project Control

area plans to issue 450 decisions. In addition to the expert services, there are further plans for additional cloud-based provision as well as continued development of the software and training for the gradual rollout of the platform of the NWL project. The onboarding of the applicants onto the NWL is to be concluded.

The introduction and implementation of a cost-covering and fair invoicing system for product control is expected to happen in the middle of 2023.

The experience gained from the discussions with the stakeholders, regarding the implementation of the requirements from the qualified permission under water law of appendix 4 of the plan-approval decision PFB Konrad combined with the amendment of the Drinking Water Ordinance planned for spring 2023 to introduce new stricter limit values, indicates that a considerable amount of time will be needed to continue meeting all the requirements. This delays the complete material description of the radioactive waste, which is necessary for its emplacement in Konrad.

In 2023, discussions are to be held regarding the legal basis for further use of the available data on the forecast inventory of radioactive waste.

Peine, 31 March 2023

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Issued June 2023

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Photos: Christian Bierwagen, Christian Islinger,  
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